



Oregon

Kate Brown, Governor

Department of Environmental Quality
Northwest Region Portland Office/Water Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232-4100
(503) 229-5263
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TTY 711

September 8, 2020

Ruth Glass
HSE Manager
5325 NE Skyport Way
Portland, OR 97218-1243
Sent via email: Ruth.Glass@sapagroup.com

**RE: Pre-Enforcement Notice NWR-WQ-2020-PEN-5636
Hydro Extrusion – Coating Division
5325 NE Skyport Way
Portland, OR 97218-1243
Multnomah County**

Dear Ms. Glass,

The Department of Environmental Quality (DEQ) conducted an unannounced complaint investigation and sample collection event at Hydro Extrusions – Coating Division (Hydro) on May 21, 2020, to determine its compliance with the Federal Resource Conservation and Recovery Act (RCRA), the Oregon Revised Statutes (ORS) and the Oregon Administrative Rules (OAR) standards for managing hazardous waste, industrial process wastewater, and industrial stormwater. The inspection report, photographic log, and laboratory reports are attached to this letter.

During the inspection, DEQ located two black hoses piped to a broken subgrade stormwater pipe. The first hose originated from an exterior air compressor, which discharges condensate to the stormwater pipe. The second hose originated from the interior of the building's air dryer system. Both hoses were piped through blue polyethylene containers with "oil/water separator" written on each prior to their discharge to the stormwater pipe. DEQ's contractor collect a single (combined) swipe sample of the two black hoses attached to the blue containers and from the inside of the broken subgrade pipe. Chromium was detected at 0.0401mg/wipe.

Hydro has had permit coverage under the NPDES 1200-Z Industrial Stormwater Discharge General Permit since December 28, 1999, (file. 104692, reissued October 22, 2018) which allows discharge of stormwater to the Columbia Slough. This facility is required to comply with all permit conditions, including preventing unauthorized discharges, reporting, and operating in accordance with DEQ-approved plans. Hydro also has an industrial wastewater pre-treatment permit from the City of Portland Bureau of Environmental Services (BES) (permit number 433.035, expires 12/17/2024) which allows the facility to discharge process wastewater to the sanitary sewer after treatment.

The discharge of exterior air compressor condensate and liquids from the interior air dryer system to the stormwater system are not authorized under either of these discharge permits. DEQ has concluded that this facility is responsible for the following violation of Oregon environmental law:

Violations:

1. ORS 468B.050(1)(a): Discharging any waste that enters waters of the state, either without a waste discharge permit or from a discharge point not authorized by a waste discharge permit.
 - a. Although the 1200-Z Permit authorizes the discharge of uncontaminated air compressor condensate from outside storage facilities, contaminated compressor condensate is not an authorized discharge under that permit.
 - b. Liquids from the interior air dryer system are considered industrial wastewater and Hydro is not permitted by DEQ for such discharges to waters of the state. DEQ understands that the subgrade stormwater pipe leads to an AQUIP stormwater treatment system; DEQ has not authorized the use of the treatment system to treat industrial wastewater prior to discharge to surface waters of the state.

This is a Class I violation pursuant to OAR 340-012-0055(1)(c). Class I violations are the most serious and Class III violations are the least serious.

Corrective Actions Required:

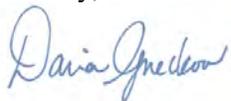
1. Hazardous Waste program inspector Zeb Bates requested the following corrective actions during the inspection. Please provide a response to the actions that are not completed.
 - a. Submit diagram for stormwater system. Complete.
 - b. Submit diagram for wastewater system. Complete.
 - c. Perform a dye test on the observed broken subgrade pipe. Update DEQ on status.
 - d. Remove the black hose from BPC directed into the broken subgrade pipe. Update DEQ on status. How will discharges from both hoses be handled moving forward? Please update the stormwater SWPCP and Wastewater Pre-treatment Permit documents as necessary; submit to Portland BES and DEQ.
 - e. Fix subgrade broken pipe and install new pavement over the top. Update DEQ on status.
 - f. Provide a schematic and explanation of the interior air drying system from which the discharges originated.
2. A response to the above is required within 30 days from the date of this letter.

Due to the nature of the violations, DEQ is referring this matter to the Department's Office of Compliance and Enforcement for formal enforcement action. Formal enforcement action may result in assessment of civil penalties and/or a Department order. A formal enforcement action may include a civil penalty assessment for each day of violation.

If any of the facts in this Pre-Enforcement Notice are not correct from your perspective, you may provide written information to me at the address shown at the top of the letter. DEQ will consider new information you submit and take appropriate action.

DEQ endeavors to assist you in your compliance efforts. Should you have any questions about the content of this letter, feel free contact me in writing or by phone 503-229-6855 or by email at gneckow.daria@deq.state.or.us.

Sincerely,



Daria Gneckow
Water Quality Specialist
Oregon Department of Environmental Quality – Northwest Region

Attachments: Inspection Report
Photographic Log
Laboratory Reports (5)

Cc via email: Becka Puskas, Office of Compliance and Enforcement, DEQ Headquarters
Stacy Hibbard, City of Portland Industrial Stormwater Program
Dan Parnell, City of Portland Industrial Pre-Treatment Program

DEQ is committed to continuing to protect the environment, deter non-compliance, and maintain a consistent statewide enforcement program. However, DEQ recognizes that public health and economic disruptions related to the COVID-19 outbreak may temporarily impact your ability to comply with DEQ requirements. DEQ encourages you to respond to this letter with specific information regarding outbreak related impacts to your operations, including staffing and service shortages.

**DEQ NORTHWEST REGION
COMPLAINT INVESTIGATION REPORT
Hydro Extrusion – Coating Division
5325 NE Skyport Way
Portland, OR 97218-1243
EPA ID# ORD982656076**



Inspection Date): May 21, 2020
DEQ Inspector: Zeb Bates
DEQ Contractor: NRC Environmental Services
Facility Representatives onsite:
Samuel Margheim – Environmental Engineer
Steve Nelson – Operations Manager
Rob Killgore – Plant Manager
Facility Representatives via phone:
Michele Jenkins – Corporate EHS
E.Jay Murphy – Farallon Consulting, Associate Compliance Specialist

Prepared by

A handwritten signature in black ink, appearing to be 'Zeb Bates'.

On July 14, 2020

GENERAL INFORMATION

Purpose of Inspection

The Department of Environmental Quality (DEQ) conducted an unannounced complaint investigation of Hydro Extrusions – Coating Division (Hydro) to determine its compliance with the Federal Resource Conservation and Recovery Act (RCRA), the Oregon Revised Statutes (ORS) and the Oregon Administrative Rules (OAR) standards for managing hazardous waste, industrial process wastewater, and industrial stormwater. DEQ is authorized by the US Environmental Protection Agency (EPA) to regulate hazardous waste management in Oregon. The purpose of these laws and rules is to prevent releases of hazardous waste onto the land, into the air, or to surface or groundwater, and to ensure proper handling and cleanup if releases occur. DEQ is also authorized by the Federal Clean Water Act to regulate point source discharges of industrial wastewater and stormwater to waters of the state.

Facility Background Information and Permits

Hydro coats aluminum architectural pieces used in the siding of commercial buildings. The facility runs two production lines: one for larger pieces on the horizontal line and the other line is for small parts that are run on the vertical line. This facility generates and reports between 440,000 – 602,000 of hazardous waste annually.

Hydro has a standard ACDP Air Quality permit from DEQ; number 26-3241-ST-1, which was issued on 11/21/2018 and expires on 11/01/2023. Hydro has had permit coverage under the NPDES 1200-Z Industrial Stormwater Discharge General Permit since December 28, 1999 (file. 104692, reissued October 22, 2018) which allows discharge to the Columbia Slough. This facility is required to comply with all permit conditions, including preventing unauthorized discharges, reporting, and operating in accordance with DEQ-approved plans. Hydro also has an industrial wastewater pre-treatment permit from the City of Portland Bureau of Environmental Services (BES) (permit number 433.035, expires 12/17/2024) which allows the facility to discharge process wastewater to the sanitary sewer.

Pre-inspection meeting

I arrived at the facility at approximately 0900 hours, I met Mr. Samuel Margheim upon entering the main office area by the reception area. Mr. Margheim said that he is the facility Environmental Engineer and asked the reason for the visit. I introduced myself to Samuel, provided credentials, and explained the reason for the site visit; DEQ complaint investigation and inspection of the stormwater system and DEQ's contractor will be collecting samples of the stormwater system, two Grattix boxes and other points of interest if identified to substantiate the complaint. While explaining the reason for the site visit I handed an Oregon Department of Environmental Quality "Consent to Inspection and Sampling" form. Mr. Margheim completed and signed the form. I asked Mr. Margheim if he would like to make a copy of the form for their records. Mr. Margheim made and retained a copy for Hydro's records. I asked Mr. Margheim if there were any other Hydro personnel he needs to contact to join the inspection. Mr. Margheim said that he will need to contact a few folks to join us. I explained to Mr. Margheim that we can wait by the stormwater treatment system and explained that the other folks can join us there.

Mr. Margheim and I donned our additional personal protective equipment (high visibility vest, safety glasses, and gloves) and made our way to the "AQUIP," Hydro's stormwater treatment unit. Mr. Nelson arrived at the AQUIP shortly thereafter. I introduced myself to Mr. Nelson and we exchanged business cards. At this time, I explained to Mr. Margheim and Mr. Nelson that DEQ received an anonymous complaint alleging that Hydro was discharging hazardous waste into their stormwater system. Furthermore, DEQ received information about an odor that made someone physically ill for 3-days after walking on the Northside of their facility between the exterior doors and their wastewater treatment unit. Lastly, I explained that DEQ contractor is en route and will be arriving shortly to collect stormwater and sediment samples. I further explained that the DEQ contractor is going to be performing personal air monitoring via PID and 4-gas meter for VOCs and Hydrogen Sulfide.

Safety meeting and scope of sampling discussion and sampling event

NRC Environmental Services (NRC), DEQ environmental contractor, arrived on-site at approximately 0954 hours. Andy Truong, NRC Project Manager would be performing the sampling with two other NRC technicians. Before starting the sampling event, NRC personnel conducted a general tailgate safety meeting. After NRC tailgate safety meeting, Mr. Nelson gave a tailgate safety meeting for Hydro.

After the safety meeting, I went over the scope of work with NRC and Hydro. I explained that there would be five sampling locations. The first three will be of the stormwater sedimentation chamber and the stormwater filtration unit pre and post-filtration. The other two will be of Grattix box number 6 on the east side of the facility and Grattix box number 9 on the north side of the facility.

Mr. Rob Killgore joined the investigation and sampling event. Mr. Margheim stated that Hydro will collect split samples with NRC. NRC assisted Hydro in collecting split samples of all sample sets performed during the inspection.

The first sampling set was in the below-grade stormwater sedimentation chamber (SSD). The initial scope of work was to collect samples of sediment from the SSD. However, after multiple attempts and the inability to collect any quantity of sediment the plan was revised to collect liquid stormwater samples. NRC proceeded to collect the sample set, completed the chain of custody (COC), and properly stored the samples.

The second sampling set was performed in the AQUIP stormwater filtration unit's main chamber. NRC collected liquid stormwater samples, completed the COC, and properly stored the samples.

The third sampling set was performed in the AQUIP ancillary piping discharge sampling point. NRC collected liquid stormwater samples, completed the COC, and properly stored the samples.

The fourth sampling set was performed in Grattix box number 6. NRC collected a composite sample set of the first six inches of media directly under the downspout of the gutter system. NRC completed the COC and properly stored the samples.

The fifth sampling set was performed in Grattix box number 9. NRC collected a composite sample set of the first six inches of media directly under the downspout of the gutter system. NRC completed the COC and properly stored the samples.

While NRC was collecting media samples from Grattix box 6 and 9, I requested that Mr. Nelson accompany me to look at the north side of the facility. While we were walking the grounds I asked Mr. Nelson if he was aware of any black hoses that were being utilized to discharge hazardous waste into their stormwater system. Mr. Nelson explained that Hydro doesn't discharge hazardous waste into their stormwater system and doesn't recall seeing a black hose.

Once Mr. Nelson and I made our way to the east side of the building next to where there is an exterior roofed small structure attached to the main building with metal fencing that houses their industrial air-compressor. I observed a black hose coming from the exterior structure and directly placed into a subgrade broken pipe located outside of the small structure next to the main facility. While inspecting the area, I observed that the condensate line from the air-compressor is plumbed into a blue polyethylene container (BPC). The BPC had words on the top written in black sharpie "oil/water separator." This BPC black discharge hose was directly placed into the broken subgrade pipe. I also observed an affixed vertical hard plumbed line on the exterior of the main building running directly next to the downspout with a hose connected to it running into a second BPC. This BPC also had words on the top written in black sharpie "oil/water separator." There was a black discharge hose connected to this BPC laying directly on the ground. I asked Mr. Nelson and Mr. Margheim if they knew what the hardline was for and if the subgrade broken piping is part of the wastewater, stormwater, or any other system. Mr. Nelson and Mr. Margheim stated they didn't know what system the broken piping was a part of. Mr. Nelson went inside the facility to identify what system the vertical hardline was connected to and a part of. When Mr. Nelson returned outside, he explained that the vertical hardline piping is part of the facility's air-dryer system.

I had NRC collect a single swipe sample of the two black hoses attached to the BPC's and from the inside of the broken subgrade pipe. NRC completed the COC and properly stored the sample.

NRC departed the site at approximately 1240 hours.

Exit meeting

A brief exit meeting was held in the lunchroom of the main facility with an adequate distance between in-person participants. In the meeting room were myself, Mr. Margheim, Mr. Nelson, and Mr. Killgore. On the phone was Ms. Michele Jenkins and Ms. E.Jay Murphy.

I thanked Hydro personnel for spending time with DEQ and NRC to go through this sampling event and granting access to all locations requested. I explained to the folks on the phone the reason DEQ was onsite collecting samples. Ms. Murphy requested information about the complaint and an overall explanation of what was sampled at the site. I explained to Ms. Murphy that a public records request will have to be requested for the complaint and any other document associated with this complaint. I further explained that the complainant was alleging that hazardous waste was being discharged into Hydro's stormwater system and or directly into the Columbia Slough. I further explained that Hydro site personnel did collect split samples with NRC. Ms. Murphy also requested the analytical parameters that DEQ will be sampling for. I explained the table below:

	1	2	3	4	5	Hoses/Pipe
PPM-13 Metals (minus mercury)	x	x	x	x	x	x
VOCs – full suite	x	x	x	x	x	no
SVOCs – full suite	x	x	x	x	x	no
Total cyanide	x	x	x	x	x	no
Total Sulfur	x	x	x	x	x	no
Sulfide	x	x	x	x	x	no

I requested that Hydro perform the following and submit documentation and or photos to DEQ by Friday, May 29, 2020:

- Submit diagram for stormwater system
- Submit diagram for wastewater system
- Perform a dye test on the observed broken subgrade pipe
- Remove the black hose from BPC directed into the broken subgrade pipe
- Fix subgrade broken pipe and install new pavement over the top

Hydro personnel agreed to DEQ request and I departed the site at 1300 hours.



1:

Stormwater sedimentation chamber located on the NE corner of the property.



2:

Stormwater sedimentation chamber and stormwater filtration unit “Aquip” located on the NE corner of the property.



3:

Stormwater filtration unit “Aquip.” Eastside of Aquip showing discharge piping and sampling port.



4:

Stormwater filtration unit “Aquip.” Westside of Aquip showing intake piping routed from stormwater sedimentation chamber directed into the pre-filter of the Aquip.



5:

Stormwater inlet piping equipped with flowmeter and isolation valves.



6:

Stormwater inlet flowmeter observed at a flowrate of 5.366 gallon per minute.



7:

Second stormwater inlet flowmeter observed at a flowrate of 6.2015 gallon per minute.



8:

Mr. Samuel Margheim (left) and Mr. Steve Nelson (right) removing the cover of the stormwater sedimentation chamber to facilitate access for sampling.



9:

Mr. Samuel Margheim (left) and Mr. Steve Nelson (right) removing the cover of the stormwater filtration unit to facilitate access for sampling.



10:

DEQ contractor, NRC Environmental Services (NRC), prepping sampling kits.



11:

NRC technician utilizing an extension pole to retrieve sample for stormwater sedimentation chamber.



12:

NRC technician utilizing an extension pole to retrieve sample for stormwater sedimentation chamber.



13:

NRC technician utilizing an extension pole to retrieve sample from stormwater sedimentation chamber.



14:

NRC technician utilizing an extension pole to retrieve sample from stormwater sedimentation chamber.



OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY - INVESTIGATION PHOTOLOG
FACILITY NAME: Hydo Extrusions – Coating Division 5325 NE Skyport Way Portland, OR 97218
EPA ID# ORD982656076
ACDP Permit 26-3241-ST-1
Stormwater Permit File 104692
BES Wastewater Permit 433.035

DATE: May 21, 2020



15:

NRC technician utilizing an extension pole to retrieve sample from stormwater sedimentation chamber.



16:

NRC technician collecting sample from the main chamber of the stormwater filtration unit.



17:

NRC technician collecting sample from the main chamber of the stormwater filtration unit.



18:

NRC technician collecting sample from the sampling port of the stormwater filtration unit discharge pipe.



19:

NRC technician collecting sample from the sampling port of the stormwater filtration unit discharge pipe



20:
Manufacturer identification label on the stormwater filtration unit.



21:
NRC technician at Grattix box 6 preparing for sample collection. Eastside of main facility.



22:

Grattix box 9 located on the northside of the main facility (right of the scissor lift).



23:

NRC technician completing chain of custody (COC) for sample set collected from Grattix box 6.



24:

NRC technician collecting sample set from Grattix box 9.



25:

NRC utilizing an Industrial Scientific-MX6 to monitor air for VOCs and hydrogen sulfide.



26:

- First (1) black hose connected to a blue polyethylene container labeled “oil/water separator” located in the eastside exterior air-compressor room routed to a broken stormwater pipe. This “oil/water separator” is connected to the condensate discharge for the air-compressor.
- Second (2) black hose connected to a blue polyethylene container labeled “oil/water separator” located in the eastside exterior air-compressor room directed to a broken stormwater pipe. This “oil/water separator” is connected to a vertical hardline affixed to the exterior of the facility and stated to be connected to the facility air-dryer unit.



27:

Eastside exterior air-compressor room.



28:

Blue polyethylene container connected to the air-compressor unit located in the in the eastside exterior room.



29:

Blue polyethylene container connected to the air-compressor unit located in the in the eastside exterior room.



30:

Broken stormwater pipe after black hose and metal plate removed.



31:

Broken stormwater pipe after black hose and metal plate removed.



32:

Broken stormwater pipe after black hose and metal plate removed.



33:

Hydro personnel removing black hoses from stormwater pipe. NRC preparing to collect a swipe sample.



34:

Hydro personnel removed black hoses from stormwater pipe. NRC preparing to collect a swipe sample.



35:

Exterior hard pipe connected to a blue polyethylene container labeled “oil/water separator”.

NRC Environmental - Portland, OR

Sample Delivery Group: L1221372
Samples Received: 05/22/2020
Project Number: IO-20-03 #152036
Description: Hydro Extrusion

Report To: Andy Truong
6211 N Ensign St.
Portland, OR 97217

Entire Report Reviewed By:



John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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SAMPLE SUMMARY



SETTLING CHAMBERS L1221372-01 GW

Collected by
Andy Truong

Collected date/time
05/21/20 10:50

Received date/time
05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1483507	1	05/28/20 15:00	05/29/20 11:56	BAM	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1482004	1	05/27/20 10:26	05/27/20 10:26	MJA	Mt. Juliet, TN
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:29	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1481515	1	05/28/20 12:50	05/28/20 18:32	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1481211	1	05/23/20 09:40	05/23/20 09:40	ADM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1482268	1	05/27/20 15:25	05/28/20 03:41	JNJ	Mt. Juliet, TN

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

AQUIP MAIN #4 L1221372-02 GW

Collected by
Andy Truong

Collected date/time
05/21/20 11:11

Received date/time
05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1483507	1	05/28/20 15:00	05/29/20 12:01	BAM	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1482004	1	05/27/20 10:26	05/27/20 10:26	MJA	Mt. Juliet, TN
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:31	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1481515	1	05/28/20 12:50	05/28/20 18:51	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1481211	1	05/23/20 10:00	05/23/20 10:00	ADM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1482268	1	05/27/20 15:25	05/28/20 04:01	JNJ	Mt. Juliet, TN

AQUIP POST #4 L1221372-03 GW

Collected by
Andy Truong

Collected date/time
05/21/20 11:40

Received date/time
05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1483689	1	05/28/20 15:43	05/29/20 18:04	BAM	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1482004	1	05/27/20 10:27	05/27/20 10:27	MJA	Mt. Juliet, TN
Mercury by Method 7470A	WG1481091	1	05/23/20 21:59	05/26/20 21:33	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1481515	1	05/28/20 12:50	05/28/20 18:58	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1481211	1	05/23/20 10:21	05/23/20 10:21	ADM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1482268	1	05/27/20 15:25	05/28/20 04:22	JNJ	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc



Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Cyanide	ND		0.00500	1	05/29/2020 11:56	WG1483507

1 Cp

2 Tc

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Sulfide	ND		0.0500	1	05/27/2020 10:26	WG1482004

3 Ss

4 Cn

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	05/26/2020 21:29	WG1481091

5 Sr

6 Qc

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.0100	1	05/28/2020 18:32	WG1481515
Arsenic	ND		0.0100	1	05/28/2020 18:32	WG1481515
Beryllium	ND		0.00200	1	05/28/2020 18:32	WG1481515
Cadmium	ND		0.00200	1	05/28/2020 18:32	WG1481515
Chromium	ND		0.0100	1	05/28/2020 18:32	WG1481515
Copper	0.0121		0.0100	1	05/28/2020 18:32	WG1481515
Lead	ND		0.00600	1	05/28/2020 18:32	WG1481515
Nickel	ND		0.0100	1	05/28/2020 18:32	WG1481515
Selenium	ND		0.0100	1	05/28/2020 18:32	WG1481515
Silver	ND		0.00500	1	05/28/2020 18:32	WG1481515
Thallium	ND		0.0100	1	05/28/2020 18:32	WG1481515
Zinc	0.0508		0.0500	1	05/28/2020 18:32	WG1481515

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acetone	ND	J4	0.0500	1	05/23/2020 09:40	WG1481211
Acrolein	ND	JO	0.0500	1	05/23/2020 09:40	WG1481211
Acrylonitrile	ND	J4	0.0100	1	05/23/2020 09:40	WG1481211
Benzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Bromobenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Bromodichloromethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
Bromoform	ND		0.00100	1	05/23/2020 09:40	WG1481211
Bromomethane	ND		0.00500	1	05/23/2020 09:40	WG1481211
n-Butylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
sec-Butylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
tert-Butylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Carbon tetrachloride	ND		0.00100	1	05/23/2020 09:40	WG1481211
Chlorobenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Chlorodibromomethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
Chloroethane	ND		0.00500	1	05/23/2020 09:40	WG1481211
2-Chloroethyl vinyl ether	ND		0.0500	1	05/23/2020 09:40	WG1481211
Chloroform	ND		0.00500	1	05/23/2020 09:40	WG1481211
Chloromethane	ND		0.00250	1	05/23/2020 09:40	WG1481211
2-Chlorotoluene	ND		0.00100	1	05/23/2020 09:40	WG1481211
4-Chlorotoluene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	05/23/2020 09:40	WG1481211
1,2-Dibromoethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
Dibromomethane	ND		0.00100	1	05/23/2020 09:40	WG1481211



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,2-Dichlorobenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,3-Dichlorobenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,4-Dichlorobenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Dichlorodifluoromethane	ND		0.00500	1	05/23/2020 09:40	WG1481211
1,1-Dichloroethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,2-Dichloroethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,1-Dichloroethene	ND		0.00100	1	05/23/2020 09:40	WG1481211
cis-1,2-Dichloroethene	ND		0.00100	1	05/23/2020 09:40	WG1481211
trans-1,2-Dichloroethene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,2-Dichloropropane	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,1-Dichloropropene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,3-Dichloropropane	ND		0.00100	1	05/23/2020 09:40	WG1481211
cis-1,3-Dichloropropene	ND		0.00100	1	05/23/2020 09:40	WG1481211
trans-1,3-Dichloropropene	ND		0.00100	1	05/23/2020 09:40	WG1481211
2,2-Dichloropropane	ND		0.00100	1	05/23/2020 09:40	WG1481211
Di-isopropyl ether	ND		0.00100	1	05/23/2020 09:40	WG1481211
Ethylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Hexachloro-1,3-butadiene	ND	JO	0.00100	1	05/23/2020 09:40	WG1481211
Isopropylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
p-Isopropyltoluene	ND		0.00100	1	05/23/2020 09:40	WG1481211
2-Butanone (MEK)	ND		0.0100	1	05/23/2020 09:40	WG1481211
Methylene Chloride	ND		0.00500	1	05/23/2020 09:40	WG1481211
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	05/23/2020 09:40	WG1481211
Methyl tert-butyl ether	ND		0.00100	1	05/23/2020 09:40	WG1481211
Naphthalene	ND		0.00500	1	05/23/2020 09:40	WG1481211
n-Propylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Styrene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,1,1,2-Tetrachloroethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,1,2,2-Tetrachloroethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
Tetrachloroethene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Toluene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,2,3-Trichlorobenzene	ND	JO	0.00100	1	05/23/2020 09:40	WG1481211
1,2,4-Trichlorobenzene	ND	JO	0.00100	1	05/23/2020 09:40	WG1481211
1,1,1-Trichloroethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,1,2-Trichloroethane	ND		0.00100	1	05/23/2020 09:40	WG1481211
Trichloroethene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Trichlorofluoromethane	ND		0.00500	1	05/23/2020 09:40	WG1481211
1,2,3-Trichloropropane	ND		0.00250	1	05/23/2020 09:40	WG1481211
1,2,4-Trimethylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,2,3-Trimethylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
1,3,5-Trimethylbenzene	ND		0.00100	1	05/23/2020 09:40	WG1481211
Vinyl chloride	ND		0.00100	1	05/23/2020 09:40	WG1481211
Xylenes, Total	ND		0.00300	1	05/23/2020 09:40	WG1481211
(S) Toluene-d8	108		80.0-120		05/23/2020 09:40	WG1481211
(S) 4-Bromofluorobenzene	99.8		77.0-126		05/23/2020 09:40	WG1481211
(S) 1,2-Dichloroethane-d4	112		70.0-130		05/23/2020 09:40	WG1481211

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Acenaphthylene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Anthracene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Benzidine	ND		0.0100	1	05/28/2020 03:41	WG1482268
Benzo(a)anthracene	ND		0.00100	1	05/28/2020 03:41	WG1482268



Collected date/time: 05/21/20 10:50

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Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzo(b)fluoranthene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Benzo(k)fluoranthene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Benzo(g,h,i)perylene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Benzo(a)pyrene	ND		0.000200	1	05/28/2020 03:41	WG1482268
Bis(2-chlorethoxy)methane	ND		0.0100	1	05/28/2020 03:41	WG1482268
Bis(2-chloroethyl)ether	ND		0.0100	1	05/28/2020 03:41	WG1482268
2,2-Oxybis(1-Chloropropane)	ND		0.0100	1	05/28/2020 03:41	WG1482268
4-Bromophenyl-phenylether	ND		0.0100	1	05/28/2020 03:41	WG1482268
2-Chloronaphthalene	ND		0.00100	1	05/28/2020 03:41	WG1482268
4-Chlorophenyl-phenylether	ND		0.0100	1	05/28/2020 03:41	WG1482268
Chrysene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Dibenz(a,h)anthracene	ND		0.000200	1	05/28/2020 03:41	WG1482268
3,3-Dichlorobenzidine	ND		0.0100	1	05/28/2020 03:41	WG1482268
2,4-Dinitrotoluene	ND		0.0100	1	05/28/2020 03:41	WG1482268
2,6-Dinitrotoluene	ND		0.0100	1	05/28/2020 03:41	WG1482268
Fluoranthene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Fluorene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Hexachlorobenzene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Hexachloro-1,3-butadiene	ND		0.0100	1	05/28/2020 03:41	WG1482268
Hexachlorocyclopentadiene	ND		0.0100	1	05/28/2020 03:41	WG1482268
Hexachloroethane	ND		0.0100	1	05/28/2020 03:41	WG1482268
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Isophorone	ND		0.0100	1	05/28/2020 03:41	WG1482268
Naphthalene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Nitrobenzene	ND		0.0100	1	05/28/2020 03:41	WG1482268
n-Nitrosodimethylamine	ND		0.0100	1	05/28/2020 03:41	WG1482268
n-Nitrosodiphenylamine	ND		0.0100	1	05/28/2020 03:41	WG1482268
n-Nitrosodi-n-propylamine	ND		0.0100	1	05/28/2020 03:41	WG1482268
Phenanthrene	ND		0.00100	1	05/28/2020 03:41	WG1482268
Benzylbutyl phthalate	ND		0.00300	1	05/28/2020 03:41	WG1482268
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	05/28/2020 03:41	WG1482268
Di-n-butyl phthalate	ND		0.00300	1	05/28/2020 03:41	WG1482268
Diethyl phthalate	ND		0.00300	1	05/28/2020 03:41	WG1482268
Dimethyl phthalate	0.00713		0.00300	1	05/28/2020 03:41	WG1482268
Di-n-octyl phthalate	ND		0.00300	1	05/28/2020 03:41	WG1482268
Pyrene	ND		0.00100	1	05/28/2020 03:41	WG1482268
1,2,4-Trichlorobenzene	ND		0.0100	1	05/28/2020 03:41	WG1482268
4-Chloro-3-methylphenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
2-Chlorophenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
2,4-Dichlorophenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
2,4-Dimethylphenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
4,6-Dinitro-2-methylphenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
2,4-Dinitrophenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
2-Nitrophenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
4-Nitrophenol	ND	J4	0.0100	1	05/28/2020 03:41	WG1482268
Pentachlorophenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
Phenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
2,4,6-Trichlorophenol	ND		0.0100	1	05/28/2020 03:41	WG1482268
(S) Nitrobenzene-d5	40.9		10.0-127		05/28/2020 03:41	WG1482268
(S) 2-Fluorobiphenyl	49.5		10.0-130		05/28/2020 03:41	WG1482268
(S) p-Terphenyl-d14	67.5		10.0-128		05/28/2020 03:41	WG1482268
(S) Phenol-d5	19.2		10.0-120		05/28/2020 03:41	WG1482268
(S) 2-Fluorophenol	30.8		10.0-120		05/28/2020 03:41	WG1482268
(S) 2,4,6-Tribromophenol	69.2		10.0-155		05/28/2020 03:41	WG1482268

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Cyanide	ND		0.00500	1	05/29/2020 12:01	WG1483507

1 Cp

2 Tc

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Sulfide	ND		0.0500	1	05/27/2020 10:26	WG1482004

3 Ss

4 Cn

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	05/26/2020 21:31	WG1481091

5 Sr

6 Qc

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.0100	1	05/28/2020 18:51	WG1481515
Arsenic	ND		0.0100	1	05/28/2020 18:51	WG1481515
Beryllium	ND		0.00200	1	05/28/2020 18:51	WG1481515
Cadmium	ND		0.00200	1	05/28/2020 18:51	WG1481515
Chromium	ND		0.0100	1	05/28/2020 18:51	WG1481515
Copper	0.0215		0.0100	1	05/28/2020 18:51	WG1481515
Lead	ND		0.00600	1	05/28/2020 18:51	WG1481515
Nickel	ND		0.0100	1	05/28/2020 18:51	WG1481515
Selenium	ND		0.0100	1	05/28/2020 18:51	WG1481515
Silver	ND		0.00500	1	05/28/2020 18:51	WG1481515
Thallium	ND		0.0100	1	05/28/2020 18:51	WG1481515
Zinc	0.183		0.0500	1	05/28/2020 18:51	WG1481515

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acetone	ND	J4	0.0500	1	05/23/2020 10:00	WG1481211
Acrolein	ND	JO	0.0500	1	05/23/2020 10:00	WG1481211
Acrylonitrile	ND	J4	0.0100	1	05/23/2020 10:00	WG1481211
Benzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Bromobenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Bromodichloromethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
Bromoform	ND		0.00100	1	05/23/2020 10:00	WG1481211
Bromomethane	ND		0.00500	1	05/23/2020 10:00	WG1481211
n-Butylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
sec-Butylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
tert-Butylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Carbon tetrachloride	ND		0.00100	1	05/23/2020 10:00	WG1481211
Chlorobenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Chlorodibromomethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
Chloroethane	ND		0.00500	1	05/23/2020 10:00	WG1481211
2-Chloroethyl vinyl ether	ND		0.0500	1	05/23/2020 10:00	WG1481211
Chloroform	ND		0.00500	1	05/23/2020 10:00	WG1481211
Chloromethane	ND		0.00250	1	05/23/2020 10:00	WG1481211
2-Chlorotoluene	ND		0.00100	1	05/23/2020 10:00	WG1481211
4-Chlorotoluene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	05/23/2020 10:00	WG1481211
1,2-Dibromoethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
Dibromomethane	ND		0.00100	1	05/23/2020 10:00	WG1481211



Collected date/time: 05/21/20 11:11

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Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
1,2-Dichlorobenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,3-Dichlorobenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,4-Dichlorobenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Dichlorodifluoromethane	ND		0.00500	1	05/23/2020 10:00	WG1481211
1,1-Dichloroethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,2-Dichloroethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,1-Dichloroethene	ND		0.00100	1	05/23/2020 10:00	WG1481211
cis-1,2-Dichloroethene	ND		0.00100	1	05/23/2020 10:00	WG1481211
trans-1,2-Dichloroethene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,2-Dichloropropane	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,1-Dichloropropene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,3-Dichloropropane	ND		0.00100	1	05/23/2020 10:00	WG1481211
cis-1,3-Dichloropropene	ND		0.00100	1	05/23/2020 10:00	WG1481211
trans-1,3-Dichloropropene	ND		0.00100	1	05/23/2020 10:00	WG1481211
2,2-Dichloropropane	ND		0.00100	1	05/23/2020 10:00	WG1481211
Di-isopropyl ether	ND		0.00100	1	05/23/2020 10:00	WG1481211
Ethylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Hexachloro-1,3-butadiene	ND	JO	0.00100	1	05/23/2020 10:00	WG1481211
Isopropylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
p-Isopropyltoluene	ND		0.00100	1	05/23/2020 10:00	WG1481211
2-Butanone (MEK)	ND		0.0100	1	05/23/2020 10:00	WG1481211
Methylene Chloride	ND		0.00500	1	05/23/2020 10:00	WG1481211
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	05/23/2020 10:00	WG1481211
Methyl tert-butyl ether	ND		0.00100	1	05/23/2020 10:00	WG1481211
Naphthalene	ND		0.00500	1	05/23/2020 10:00	WG1481211
n-Propylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Styrene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,1,1,2-Tetrachloroethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,1,2,2-Tetrachloroethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
Tetrachloroethene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Toluene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,2,3-Trichlorobenzene	ND	JO	0.00100	1	05/23/2020 10:00	WG1481211
1,2,4-Trichlorobenzene	ND	JO	0.00100	1	05/23/2020 10:00	WG1481211
1,1,1-Trichloroethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,1,2-Trichloroethane	ND		0.00100	1	05/23/2020 10:00	WG1481211
Trichloroethene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Trichlorofluoromethane	ND		0.00500	1	05/23/2020 10:00	WG1481211
1,2,3-Trichloropropane	ND		0.00250	1	05/23/2020 10:00	WG1481211
1,2,4-Trimethylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,2,3-Trimethylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
1,3,5-Trimethylbenzene	ND		0.00100	1	05/23/2020 10:00	WG1481211
Vinyl chloride	ND		0.00100	1	05/23/2020 10:00	WG1481211
Xylenes, Total	ND		0.00300	1	05/23/2020 10:00	WG1481211
(S) Toluene-d8	107		80.0-120		05/23/2020 10:00	WG1481211
(S) 4-Bromofluorobenzene	98.9		77.0-126		05/23/2020 10:00	WG1481211
(S) 1,2-Dichloroethane-d4	108		70.0-130		05/23/2020 10:00	WG1481211

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acenaphthene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Acenaphthylene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Anthracene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Benzidine	ND		0.0100	1	05/28/2020 04:01	WG1482268
Benzo(a)anthracene	ND		0.00100	1	05/28/2020 04:01	WG1482268



Collected date/time: 05/21/20 11:11

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Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzo(b)fluoranthene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Benzo(k)fluoranthene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Benzo(g,h,i)perylene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Benzo(a)pyrene	ND		0.000200	1	05/28/2020 04:01	WG1482268
Bis(2-chloroethoxy)methane	ND		0.0100	1	05/28/2020 04:01	WG1482268
Bis(2-chloroethyl)ether	ND		0.0100	1	05/28/2020 04:01	WG1482268
2,2-Oxybis(1-Chloropropane)	ND		0.0100	1	05/28/2020 04:01	WG1482268
4-Bromophenyl-phenylether	ND		0.0100	1	05/28/2020 04:01	WG1482268
2-Chloronaphthalene	ND		0.00100	1	05/28/2020 04:01	WG1482268
4-Chlorophenyl-phenylether	ND		0.0100	1	05/28/2020 04:01	WG1482268
Chrysene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Dibenz(a,h)anthracene	ND		0.000200	1	05/28/2020 04:01	WG1482268
3,3-Dichlorobenzidine	ND		0.0100	1	05/28/2020 04:01	WG1482268
2,4-Dinitrotoluene	ND		0.0100	1	05/28/2020 04:01	WG1482268
2,6-Dinitrotoluene	ND		0.0100	1	05/28/2020 04:01	WG1482268
Fluoranthene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Fluorene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Hexachlorobenzene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Hexachloro-1,3-butadiene	ND		0.0100	1	05/28/2020 04:01	WG1482268
Hexachlorocyclopentadiene	ND		0.0100	1	05/28/2020 04:01	WG1482268
Hexachloroethane	ND		0.0100	1	05/28/2020 04:01	WG1482268
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Isophorone	ND		0.0100	1	05/28/2020 04:01	WG1482268
Naphthalene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Nitrobenzene	ND		0.0100	1	05/28/2020 04:01	WG1482268
n-Nitrosodimethylamine	ND		0.0100	1	05/28/2020 04:01	WG1482268
n-Nitrosodiphenylamine	ND		0.0100	1	05/28/2020 04:01	WG1482268
n-Nitrosodi-n-propylamine	ND		0.0100	1	05/28/2020 04:01	WG1482268
Phenanthrene	ND		0.00100	1	05/28/2020 04:01	WG1482268
Benzylbutyl phthalate	ND		0.00300	1	05/28/2020 04:01	WG1482268
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	05/28/2020 04:01	WG1482268
Di-n-butyl phthalate	ND		0.00300	1	05/28/2020 04:01	WG1482268
Diethyl phthalate	ND		0.00300	1	05/28/2020 04:01	WG1482268
Dimethyl phthalate	0.0550		0.00300	1	05/28/2020 04:01	WG1482268
Di-n-octyl phthalate	ND		0.00300	1	05/28/2020 04:01	WG1482268
Pyrene	ND		0.00100	1	05/28/2020 04:01	WG1482268
1,2,4-Trichlorobenzene	ND		0.0100	1	05/28/2020 04:01	WG1482268
4-Chloro-3-methylphenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
2-Chlorophenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
2,4-Dichlorophenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
2,4-Dimethylphenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
4,6-Dinitro-2-methylphenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
2,4-Dinitrophenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
2-Nitrophenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
4-Nitrophenol	ND	J4	0.0100	1	05/28/2020 04:01	WG1482268
Pentachlorophenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
Phenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
2,4,6-Trichlorophenol	ND		0.0100	1	05/28/2020 04:01	WG1482268
(S) Nitrobenzene-d5	39.9		10.0-127		05/28/2020 04:01	WG1482268
(S) 2-Fluorobiphenyl	50.9		10.0-130		05/28/2020 04:01	WG1482268
(S) p-Terphenyl-d14	58.1		10.0-128		05/28/2020 04:01	WG1482268
(S) Phenol-d5	20.1		10.0-120		05/28/2020 04:01	WG1482268
(S) 2-Fluorophenol	31.2		10.0-120		05/28/2020 04:01	WG1482268
(S) 2,4,6-Tribromophenol	65.4		10.0-155		05/28/2020 04:01	WG1482268

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Cyanide	ND		0.00500	1	05/29/2020 18:04	WG1483689

¹ Cp

² Tc

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Sulfide	ND		0.0500	1	05/27/2020 10:27	WG1482004

³ Ss

⁴ Cn

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	05/26/2020 21:33	WG1481091

⁵ Sr

⁶ Qc

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Antimony	ND		0.0100	1	05/28/2020 18:58	WG1481515
Arsenic	ND		0.0100	1	05/28/2020 18:58	WG1481515
Beryllium	ND		0.00200	1	05/28/2020 18:58	WG1481515
Cadmium	ND		0.00200	1	05/28/2020 18:58	WG1481515
Chromium	ND		0.0100	1	05/28/2020 18:58	WG1481515
Copper	ND		0.0100	1	05/28/2020 18:58	WG1481515
Lead	ND		0.00600	1	05/28/2020 18:58	WG1481515
Nickel	ND		0.0100	1	05/28/2020 18:58	WG1481515
Selenium	ND		0.0100	1	05/28/2020 18:58	WG1481515
Silver	ND		0.00500	1	05/28/2020 18:58	WG1481515
Thallium	ND		0.0100	1	05/28/2020 18:58	WG1481515
Zinc	ND		0.0500	1	05/28/2020 18:58	WG1481515

⁷ Gl

⁸ Al

⁹ Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acetone	ND	J4	0.0500	1	05/23/2020 10:21	WG1481211
Acrolein	ND	J0	0.0500	1	05/23/2020 10:21	WG1481211
Acrylonitrile	ND	J4	0.0100	1	05/23/2020 10:21	WG1481211
Benzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Bromobenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Bromodichloromethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
Bromoform	ND		0.00100	1	05/23/2020 10:21	WG1481211
Bromomethane	ND		0.00500	1	05/23/2020 10:21	WG1481211
n-Butylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
sec-Butylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
tert-Butylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Carbon tetrachloride	ND		0.00100	1	05/23/2020 10:21	WG1481211
Chlorobenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Chlorodibromomethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
Chloroethane	ND		0.00500	1	05/23/2020 10:21	WG1481211
2-Chloroethyl vinyl ether	ND		0.0500	1	05/23/2020 10:21	WG1481211
Chloroform	ND		0.00500	1	05/23/2020 10:21	WG1481211
Chloromethane	ND		0.00250	1	05/23/2020 10:21	WG1481211
2-Chlorotoluene	ND		0.00100	1	05/23/2020 10:21	WG1481211
4-Chlorotoluene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	05/23/2020 10:21	WG1481211
1,2-Dibromoethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
Dibromomethane	ND		0.00100	1	05/23/2020 10:21	WG1481211



Collected date/time: 05/21/20 11:40

L1221372

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,2-Dichlorobenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,3-Dichlorobenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,4-Dichlorobenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Dichlorodifluoromethane	ND		0.00500	1	05/23/2020 10:21	WG1481211
1,1-Dichloroethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,2-Dichloroethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,1-Dichloroethene	ND		0.00100	1	05/23/2020 10:21	WG1481211
cis-1,2-Dichloroethene	ND		0.00100	1	05/23/2020 10:21	WG1481211
trans-1,2-Dichloroethene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,2-Dichloropropane	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,1-Dichloropropene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,3-Dichloropropane	ND		0.00100	1	05/23/2020 10:21	WG1481211
cis-1,3-Dichloropropene	ND		0.00100	1	05/23/2020 10:21	WG1481211
trans-1,3-Dichloropropene	ND		0.00100	1	05/23/2020 10:21	WG1481211
2,2-Dichloropropane	ND		0.00100	1	05/23/2020 10:21	WG1481211
Di-isopropyl ether	ND		0.00100	1	05/23/2020 10:21	WG1481211
Ethylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Hexachloro-1,3-butadiene	ND	JO	0.00100	1	05/23/2020 10:21	WG1481211
Isopropylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
p-Isopropyltoluene	ND		0.00100	1	05/23/2020 10:21	WG1481211
2-Butanone (MEK)	ND		0.0100	1	05/23/2020 10:21	WG1481211
Methylene Chloride	ND		0.00500	1	05/23/2020 10:21	WG1481211
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	05/23/2020 10:21	WG1481211
Methyl tert-butyl ether	ND		0.00100	1	05/23/2020 10:21	WG1481211
Naphthalene	ND		0.00500	1	05/23/2020 10:21	WG1481211
n-Propylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Styrene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,1,1,2-Tetrachloroethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,1,2,2-Tetrachloroethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
Tetrachloroethene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Toluene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,2,3-Trichlorobenzene	ND	JO	0.00100	1	05/23/2020 10:21	WG1481211
1,2,4-Trichlorobenzene	ND	JO	0.00100	1	05/23/2020 10:21	WG1481211
1,1,1-Trichloroethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,1,2-Trichloroethane	ND		0.00100	1	05/23/2020 10:21	WG1481211
Trichloroethene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Trichlorofluoromethane	ND		0.00500	1	05/23/2020 10:21	WG1481211
1,2,3-Trichloropropane	ND		0.00250	1	05/23/2020 10:21	WG1481211
1,2,4-Trimethylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,2,3-Trimethylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
1,3,5-Trimethylbenzene	ND		0.00100	1	05/23/2020 10:21	WG1481211
Vinyl chloride	ND		0.00100	1	05/23/2020 10:21	WG1481211
Xylenes, Total	ND		0.00300	1	05/23/2020 10:21	WG1481211
(S) Toluene-d8	106		80.0-120		05/23/2020 10:21	WG1481211
(S) 4-Bromofluorobenzene	97.6		77.0-126		05/23/2020 10:21	WG1481211
(S) 1,2-Dichloroethane-d4	108		70.0-130		05/23/2020 10:21	WG1481211

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Acenaphthylene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Anthracene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Benzidine	ND		0.0100	1	05/28/2020 04:22	WG1482268
Benzo(a)anthracene	ND		0.00100	1	05/28/2020 04:22	WG1482268



Collected date/time: 05/21/20 11:40

L1221372

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzo(b)fluoranthene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Benzo(k)fluoranthene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Benzo(g,h,i)perylene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Benzo(a)pyrene	ND		0.000200	1	05/28/2020 04:22	WG1482268
Bis(2-chloroethoxy)methane	ND		0.0100	1	05/28/2020 04:22	WG1482268
Bis(2-chloroethyl)ether	ND		0.0100	1	05/28/2020 04:22	WG1482268
2,2-Oxybis(1-Chloropropane)	ND		0.0100	1	05/28/2020 04:22	WG1482268
4-Bromophenyl-phenylether	ND		0.0100	1	05/28/2020 04:22	WG1482268
2-Chloronaphthalene	ND		0.00100	1	05/28/2020 04:22	WG1482268
4-Chlorophenyl-phenylether	ND		0.0100	1	05/28/2020 04:22	WG1482268
Chrysene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Dibenz(a,h)anthracene	ND		0.000200	1	05/28/2020 04:22	WG1482268
3,3-Dichlorobenzidine	ND		0.0100	1	05/28/2020 04:22	WG1482268
2,4-Dinitrotoluene	ND		0.0100	1	05/28/2020 04:22	WG1482268
2,6-Dinitrotoluene	ND		0.0100	1	05/28/2020 04:22	WG1482268
Fluoranthene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Fluorene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Hexachlorobenzene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Hexachloro-1,3-butadiene	ND		0.0100	1	05/28/2020 04:22	WG1482268
Hexachlorocyclopentadiene	ND		0.0100	1	05/28/2020 04:22	WG1482268
Hexachloroethane	ND		0.0100	1	05/28/2020 04:22	WG1482268
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Isophorone	ND		0.0100	1	05/28/2020 04:22	WG1482268
Naphthalene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Nitrobenzene	ND		0.0100	1	05/28/2020 04:22	WG1482268
n-Nitrosodimethylamine	ND		0.0100	1	05/28/2020 04:22	WG1482268
n-Nitrosodiphenylamine	ND		0.0100	1	05/28/2020 04:22	WG1482268
n-Nitrosodi-n-propylamine	ND		0.0100	1	05/28/2020 04:22	WG1482268
Phenanthrene	ND		0.00100	1	05/28/2020 04:22	WG1482268
Benzylbutyl phthalate	ND		0.00300	1	05/28/2020 04:22	WG1482268
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	05/28/2020 04:22	WG1482268
Di-n-butyl phthalate	ND		0.00300	1	05/28/2020 04:22	WG1482268
Diethyl phthalate	ND		0.00300	1	05/28/2020 04:22	WG1482268
Dimethyl phthalate	ND		0.00300	1	05/28/2020 04:22	WG1482268
Di-n-octyl phthalate	ND		0.00300	1	05/28/2020 04:22	WG1482268
Pyrene	ND		0.00100	1	05/28/2020 04:22	WG1482268
1,2,4-Trichlorobenzene	ND		0.0100	1	05/28/2020 04:22	WG1482268
4-Chloro-3-methylphenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
2-Chlorophenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
2,4-Dichlorophenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
2,4-Dimethylphenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
4,6-Dinitro-2-methylphenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
2,4-Dinitrophenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
2-Nitrophenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
4-Nitrophenol	ND	J4	0.0100	1	05/28/2020 04:22	WG1482268
Pentachlorophenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
Phenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
2,4,6-Trichlorophenol	ND		0.0100	1	05/28/2020 04:22	WG1482268
(S) Nitrobenzene-d5	42.3		10.0-127		05/28/2020 04:22	WG1482268
(S) 2-Fluorobiphenyl	51.4		10.0-130		05/28/2020 04:22	WG1482268
(S) p-Terphenyl-d14	65.5		10.0-128		05/28/2020 04:22	WG1482268
(S) Phenol-d5	17.9		10.0-120		05/28/2020 04:22	WG1482268
(S) 2-Fluorophenol	29.5		10.0-120		05/28/2020 04:22	WG1482268
(S) 2,4,6-Tribromophenol	65.9		10.0-155		05/28/2020 04:22	WG1482268

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3533016-1 05/29/20 11:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Cyanide	U		0.00180	0.00500

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1221202-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1221202-05 05/29/20 11:49 • (DUP) R3533016-5 05/29/20 11:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Cyanide	ND	ND	1	0.000		20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3533016-8 05/29/20 12:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Cyanide		ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3533016-2 05/29/20 11:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Cyanide	0.100	0.0953	95.3	90.0-110	

L1221372-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221372-01 05/29/20 11:56 • (MS) R3533016-6 05/29/20 11:57 • (MSD) R3533016-7 05/29/20 12:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Cyanide	0.100	ND	0.100	0.0951	100	95.1	1	75.0-125			5.02	20



Method Blank (MB)

(MB) R3533217-1 05/29/20 17:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Cyanide	U		0.00180	0.00500

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1221372-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1221372-03 05/29/20 18:04 • (DUP) R3533217-6 05/29/20 18:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3533217-2 05/29/20 17:47

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Cyanide	0.100	0.101	101	90.0-110	

L1220796-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1220796-02 05/29/20 17:58 • (MS) R3533217-4 05/29/20 17:59 • (MSD) R3533217-5 05/29/20 18:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Cyanide	0.100	ND	0.0948	0.0912	94.8	91.2	1	75.0-125			3.87	20

L1221721-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221721-01 05/29/20 18:10 • (MS) R3533217-7 05/29/20 18:11 • (MSD) R3533217-8 05/29/20 18:12

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Cyanide	0.100	ND	0.0722	0.0960	72.2	96.0	1	75.0-125	J6	J3	28.3	20



Method Blank (MB)

(MB) R3532054-1 05/27/20 10:23

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Sulfide	U		0.0250	0.0500

¹ Cp

² Tc

³ Ss

Laboratory Control Sample (LCS)

(LCS) R3532054-2 05/27/20 10:23

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Sulfide	0.500	0.537	107	85.0-115	

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3531924-1 05/26/20 20:55

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R3531924-4 05/26/20 21:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Mercury	0.00300	0.00280	93.3	80.0-120	

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3532807-1 05/28/20 18:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.00430	0.0100
Arsenic	U		0.00440	0.0100
Beryllium	U		0.000460	0.00200
Cadmium	U		0.000563	0.00200
Chromium	U		0.00500	0.0100
Copper	U		0.00469	0.0100
Lead	U		0.00295	0.00600
Nickel	U		0.00298	0.0100
Selenium	U		0.00735	0.0100
Silver	U		0.00191	0.00500
Thallium	U		0.00431	0.0100
Zinc	U		0.00916	0.0500



Laboratory Control Sample (LCS)

(LCS) R3532807-2 05/28/20 18:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	1.00	0.967	96.7	80.0-120	
Arsenic	1.00	0.982	98.2	80.0-120	
Beryllium	1.00	1.01	101	80.0-120	
Cadmium	1.00	0.971	97.1	80.0-120	
Chromium	1.00	0.983	98.3	80.0-120	
Copper	1.00	0.999	99.9	80.0-120	
Lead	1.00	0.999	99.9	80.0-120	
Nickel	1.00	1.00	100	80.0-120	
Selenium	1.00	1.01	101	80.0-120	
Silver	0.200	0.180	90.1	80.0-120	
Thallium	1.00	0.997	99.7	80.0-120	
Zinc	1.00	0.985	98.5	80.0-120	

L1221372-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221372-01 05/28/20 18:32 • (MS) R3532807-4 05/28/20 18:37 • (MSD) R3532807-5 05/28/20 18:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	1.00	ND	0.989	0.992	98.9	99.2	1	75.0-125			0.316	20
Arsenic	1.00	ND	1.00	1.00	100	100	1	75.0-125			0.107	20
Beryllium	1.00	ND	1.01	1.00	101	100	1	75.0-125			1.33	20



L1221372-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221372-01 05/28/20 18:32 • (MS) R3532807-4 05/28/20 18:37 • (MSD) R3532807-5 05/28/20 18:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cadmium	1.00	ND	0.988	0.978	98.8	97.8	1	75.0-125			1.09	20
Chromium	1.00	ND	1.00	0.992	100	99.2	1	75.0-125			0.987	20
Copper	1.00	0.0121	1.03	1.02	102	100	1	75.0-125			1.25	20
Lead	1.00	ND	1.01	1.01	101	101	1	75.0-125			0.441	20
Nickel	1.00	ND	1.02	1.01	102	101	1	75.0-125			0.856	20
Selenium	1.00	ND	1.02	1.03	102	103	1	75.0-125			1.64	20
Silver	0.200	ND	0.183	0.182	91.7	91.0	1	75.0-125			0.783	20
Thallium	1.00	ND	1.00	0.996	100	99.6	1	75.0-125			0.508	20
Zinc	1.00	0.0508	1.05	1.05	100	99.5	1	75.0-125			0.721	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3532729-2 05/23/20 06:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0113	0.0500
Acrolein	U		0.00254	0.0500
Acrylonitrile	U		0.000671	0.0100
Benzene	U		0.0000941	0.00100
Bromobenzene	U		0.000118	0.00100
Bromodichloromethane	U		0.000136	0.00100
Bromoform	U		0.000129	0.00100
Bromomethane	U		0.000605	0.00500
n-Butylbenzene	U		0.000157	0.00100
sec-Butylbenzene	U		0.000125	0.00100
tert-Butylbenzene	U		0.000127	0.00100
Carbon tetrachloride	U		0.000128	0.00100
Chlorobenzene	U		0.000116	0.00100
Chlorodibromomethane	U		0.000140	0.00100
Chloroethane	U		0.000192	0.00500
2-Chloroethyl vinyl ether	U		0.000575	0.0500
Chloroform	U		0.000111	0.00500
Chloromethane	U		0.000960	0.00250
2-Chlorotoluene	U		0.000106	0.00100
4-Chlorotoluene	U		0.000114	0.00100
1,2-Dibromo-3-Chloropropane	U		0.000276	0.00500
1,2-Dibromoethane	U		0.000126	0.00100
Dibromomethane	U		0.000122	0.00100
1,2-Dichlorobenzene	U		0.000107	0.00100
1,3-Dichlorobenzene	U		0.000110	0.00100
1,4-Dichlorobenzene	U		0.000120	0.00100
Dichlorodifluoromethane	U		0.000374	0.00500
1,1-Dichloroethane	U		0.000100	0.00100
1,2-Dichloroethane	U		0.0000819	0.00100
1,1-Dichloroethene	U		0.000188	0.00100
cis-1,2-Dichloroethene	U		0.000126	0.00100
trans-1,2-Dichloroethene	U		0.000149	0.00100
1,2-Dichloropropane	U		0.000149	0.00100
1,1-Dichloropropene	U		0.000142	0.00100
1,3-Dichloropropane	U		0.000110	0.00100
cis-1,3-Dichloropropene	U		0.000111	0.00100
trans-1,3-Dichloropropene	U		0.000118	0.00100
2,2-Dichloropropane	U		0.000161	0.00100
Di-isopropyl ether	U		0.000105	0.00100
Ethylbenzene	U		0.000137	0.00100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3532729-2 05/23/20 06:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexachloro-1,3-butadiene	U		0.000337	0.00100
Isopropylbenzene	U		0.000105	0.00100
p-Isopropyltoluene	U		0.000120	0.00100
2-Butanone (MEK)	U		0.00119	0.0100
Methylene Chloride	U		0.000430	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.000478	0.0100
Methyl tert-butyl ether	U		0.000101	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.0000993	0.00100
Styrene	U		0.000118	0.00100
1,1,1,2-Tetrachloroethane	U		0.000147	0.00100
1,1,2,2-Tetrachloroethane	U		0.000133	0.00100
Tetrachloroethene	U		0.000300	0.00100
Toluene	U		0.000278	0.00100
1,1,2-Trichlorotrifluoroethane	U		0.000180	0.00100
1,2,3-Trichlorobenzene	U		0.000230	0.00100
1,2,4-Trichlorobenzene	U		0.000481	0.00100
1,1,1-Trichloroethane	U		0.000149	0.00100
1,1,2-Trichloroethane	U		0.000158	0.00100
Trichloroethene	U		0.000190	0.00100
Trichlorofluoromethane	U		0.000160	0.00500
1,2,3-Trichloropropane	U		0.000237	0.00250
1,2,3-Trimethylbenzene	U		0.000104	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Vinyl chloride	U		0.000234	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	109			80.0-120
(S) 4-Bromofluorobenzene	98.6			77.0-126
(S) 1,2-Dichloroethane-d4	108			70.0-130

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Laboratory Control Sample (LCS)

(LCS) R3532729-1 05/23/20 06:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.0250	0.0449	180	19.0-160	<u>J4</u>
Acrolein	0.0250	0.0130	52.0	10.0-160	
Acrylonitrile	0.0250	0.0379	152	55.0-149	<u>J4</u>



Laboratory Control Sample (LCS)

(LCS) R3532729-1 05/23/20 06:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Benzene	0.00500	0.00539	108	70.0-123	
Bromobenzene	0.00500	0.00481	96.2	73.0-121	
Bromodichloromethane	0.00500	0.00534	107	75.0-120	
Bromoform	0.00500	0.00463	92.6	68.0-132	
Bromomethane	0.00500	0.00590	118	10.0-160	
n-Butylbenzene	0.00500	0.00452	90.4	73.0-125	
sec-Butylbenzene	0.00500	0.00485	97.0	75.0-125	
tert-Butylbenzene	0.00500	0.00488	97.6	76.0-124	
Carbon tetrachloride	0.00500	0.00533	107	68.0-126	
Chlorobenzene	0.00500	0.00588	118	80.0-121	
Chlorodibromomethane	0.00500	0.00527	105	77.0-125	
Chloroethane	0.00500	0.00611	122	47.0-150	
2-Chloroethyl vinyl ether	0.0250	0.0308	123	51.0-160	
Chloroform	0.00500	0.00531	106	73.0-120	
Chloromethane	0.00500	0.00663	133	41.0-142	
2-Chlorotoluene	0.00500	0.00517	103	76.0-123	
4-Chlorotoluene	0.00500	0.00496	99.2	75.0-122	
1,2-Dibromo-3-Chloropropane	0.00500	0.00492	98.4	58.0-134	
1,2-Dibromoethane	0.00500	0.00529	106	80.0-122	
Dibromomethane	0.00500	0.00556	111	80.0-120	
1,2-Dichlorobenzene	0.00500	0.00523	105	79.0-121	
1,3-Dichlorobenzene	0.00500	0.00501	100	79.0-120	
1,4-Dichlorobenzene	0.00500	0.00524	105	79.0-120	
Dichlorodifluoromethane	0.00500	0.00521	104	51.0-149	
1,1-Dichloroethane	0.00500	0.00599	120	70.0-126	
1,2-Dichloroethane	0.00500	0.00577	115	70.0-128	
1,1-Dichloroethene	0.00500	0.00546	109	71.0-124	
cis-1,2-Dichloroethene	0.00500	0.00521	104	73.0-120	
trans-1,2-Dichloroethene	0.00500	0.00548	110	73.0-120	
1,2-Dichloropropane	0.00500	0.00587	117	77.0-125	
1,1-Dichloropropene	0.00500	0.00550	110	74.0-126	
1,3-Dichloropropane	0.00500	0.00537	107	80.0-120	
cis-1,3-Dichloropropene	0.00500	0.00551	110	80.0-123	
trans-1,3-Dichloropropene	0.00500	0.00522	104	78.0-124	
2,2-Dichloropropane	0.00500	0.00485	97.0	58.0-130	
Di-isopropyl ether	0.00500	0.00605	121	58.0-138	
Ethylbenzene	0.00500	0.00498	99.6	79.0-123	
Hexachloro-1,3-butadiene	0.00500	0.00398	79.6	54.0-138	
Isopropylbenzene	0.00500	0.00465	93.0	76.0-127	
p-Isopropyltoluene	0.00500	0.00484	96.8	76.0-125	

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Laboratory Control Sample (LCS)

(LCS) R3532729-1 05/23/20 06:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
2-Butanone (MEK)	0.0250	0.0371	148	44.0-160	
Methylene Chloride	0.00500	0.00551	110	67.0-120	
4-Methyl-2-pentanone (MIBK)	0.0250	0.0347	139	68.0-142	
Methyl tert-butyl ether	0.00500	0.00522	104	68.0-125	
Naphthalene	0.00500	0.00473	94.6	54.0-135	
n-Propylbenzene	0.00500	0.00506	101	77.0-124	
Styrene	0.00500	0.00499	99.8	73.0-130	
1,1,1,2-Tetrachloroethane	0.00500	0.00564	113	75.0-125	
1,1,2,2-Tetrachloroethane	0.00500	0.00559	112	65.0-130	
Tetrachloroethene	0.00500	0.00509	102	72.0-132	
Toluene	0.00500	0.00546	109	79.0-120	
1,1,2-Trichlorotrifluoroethane	0.00500	0.00506	101	69.0-132	
1,2,3-Trichlorobenzene	0.00500	0.00454	90.8	50.0-138	
1,2,4-Trichlorobenzene	0.00500	0.00348	69.6	57.0-137	
1,1,1-Trichloroethane	0.00500	0.00530	106	73.0-124	
1,1,2-Trichloroethane	0.00500	0.00522	104	80.0-120	
Trichloroethene	0.00500	0.00586	117	78.0-124	
Trichlorofluoromethane	0.00500	0.00516	103	59.0-147	
1,2,3-Trichloropropane	0.00500	0.00577	115	73.0-130	
1,2,3-Trimethylbenzene	0.00500	0.00479	95.8	77.0-120	
1,2,4-Trimethylbenzene	0.00500	0.00454	90.8	76.0-121	
1,3,5-Trimethylbenzene	0.00500	0.00483	96.6	76.0-122	
Vinyl chloride	0.00500	0.00653	131	67.0-131	
Xylenes, Total	0.0150	0.0153	102	79.0-123	
(S) Toluene-d8			104	80.0-120	
(S) 4-Bromofluorobenzene			98.7	77.0-126	
(S) 1,2-Dichloroethane-d4			110	70.0-130	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3532688-3 05/28/20 01:19

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.000886	0.00100
Acenaphthylene	U		0.000921	0.00100
Anthracene	U		0.000804	0.00100
Benzidine	U		0.00374	0.0100
Benzo(a)anthracene	U		0.000199	0.00100
Benzo(b)fluoranthene	U		0.000130	0.00100
Benzo(k)fluoranthene	U		0.000120	0.00100
Benzo(g,h,i)perylene	U		0.000121	0.00100
Benzo(a)pyrene	U		0.0000381	0.000200
Bis(2-chloroethoxy)methane	U		0.000116	0.0100
Bis(2-chloroethyl)ether	U		0.000137	0.0100
2,2-Oxybis(1-Chloropropane)	U		0.000210	0.0100
4-Bromophenyl-phenylether	U		0.000877	0.0100
2-Chloronaphthalene	U		0.000648	0.00100
4-Chlorophenyl-phenylether	U		0.000926	0.0100
Chrysene	U		0.000130	0.00100
Dibenz(a,h)anthracene	U		0.000644	0.000200
3,3-Dichlorobenzidine	U		0.000212	0.0100
2,4-Dinitrotoluene	U		0.000983	0.0100
2,6-Dinitrotoluene	U		0.000250	0.0100
Fluoranthene	U		0.000102	0.00100
Fluorene	U		0.000844	0.00100
Hexachlorobenzene	U		0.000755	0.00100
Hexachloro-1,3-butadiene	U		0.000968	0.0100
Hexachlorocyclopentadiene	U		0.000598	0.0100
Hexachloroethane	U		0.000127	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000143	0.0100
Naphthalene	U		0.000159	0.00100
Nitrobenzene	U		0.000297	0.0100
n-Nitrosodimethylamine	U		0.000998	0.0100
n-Nitrosodiphenylamine	U		0.00237	0.0100
n-Nitrosodi-n-propylamine	U		0.000261	0.0100
Phenanthrene	U		0.000112	0.00100
Benzylbutyl phthalate	U		0.000765	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000895	0.00300
Di-n-butyl phthalate	U		0.000453	0.00300
Diethyl phthalate	U		0.000287	0.00300
Dimethyl phthalate	U		0.000260	0.00300
Di-n-octyl phthalate	U		0.000932	0.00300

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3532688-3 05/28/20 01:19

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Pyrene	U		0.000107	0.00100
1,2,4-Trichlorobenzene	U		0.0000698	0.0100
4-Chloro-3-methylphenol	U		0.000131	0.0100
2-Chlorophenol	U		0.000133	0.0100
2,4-Dichlorophenol	U		0.000102	0.0100
2,4-Dimethylphenol	U		0.0000636	0.0100
4,6-Dinitro-2-methylphenol	U		0.00112	0.0100
2,4-Dinitrophenol	U		0.00593	0.0100
2-Nitrophenol	U		0.000117	0.0100
4-Nitrophenol	U		0.000143	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.00433	0.0100
2,4,6-Trichlorophenol	U		0.000100	0.0100
(S) Nitrobenzene-d5	49.0			10.0-127
(S) 2-Fluorobiphenyl	55.7			10.0-130
(S) p-Terphenyl-d14	64.4			10.0-128
(S) Phenol-d5	23.1			10.0-120
(S) 2-Fluorophenol	37.0			10.0-120
(S) 2,4,6-Tribromophenol	67.0			10.0-155

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3532688-1 05/28/20 00:38 • (LCSD) R3532688-2 05/28/20 00:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	0.0283	0.0273	56.6	54.6	41.0-120			3.60	22
Acenaphthylene	0.0500	0.0311	0.0295	62.2	59.0	43.0-120			5.28	22
Anthracene	0.0500	0.0327	0.0322	65.4	64.4	45.0-120			1.54	20
Benzidine	0.100	0.0491	0.0575	49.1	57.5	10.0-120			15.8	36
Benzo(a)anthracene	0.0500	0.0329	0.0319	65.8	63.8	47.0-120			3.09	20
Benzo(b)fluoranthene	0.0500	0.0327	0.0321	65.4	64.2	46.0-120			1.85	20
Benzo(k)fluoranthene	0.0500	0.0324	0.0318	64.8	63.6	46.0-120			1.87	21
Benzo(g,h,i)perylene	0.0500	0.0361	0.0342	72.2	68.4	48.0-121			5.41	20
Benzo(a)pyrene	0.0500	0.0345	0.0332	69.0	66.4	47.0-120			3.84	20
Bis(2-chlorethoxy)methane	0.0500	0.0249	0.0237	49.8	47.4	33.0-120			4.94	24
Bis(2-chloroethyl)ether	0.0500	0.0283	0.0253	56.6	50.6	23.0-120			11.2	33
4-Bromophenyl-phenylether	0.0500	0.0325	0.0321	65.0	64.2	45.0-120			1.24	20
2-Chloronaphthalene	0.0500	0.0278	0.0264	55.6	52.8	37.0-120			5.17	25
4-Chlorophenyl-phenylether	0.0500	0.0302	0.0299	60.4	59.8	44.0-120			0.998	20



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3532688-1 05/28/20 00:38 • (LCSD) R3532688-2 05/28/20 00:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
2,2-Oxybis(1-Chloropropane)	0.0500	0.0254	0.0234	50.8	46.8	28.0-120			8.20	31
Chrysene	0.0500	0.0341	0.0324	68.2	64.8	48.0-120			5.11	20
Dibenz(a,h)anthracene	0.0500	0.0321	0.0306	64.2	61.2	47.0-120			4.78	20
3,3-Dichlorobenzidine	0.100	0.0677	0.0656	67.7	65.6	44.0-120			3.15	20
2,4-Dinitrotoluene	0.0500	0.0333	0.0319	66.6	63.8	49.0-124			4.29	20
2,6-Dinitrotoluene	0.0500	0.0320	0.0314	64.0	62.8	46.0-120			1.89	21
Fluoranthene	0.0500	0.0342	0.0327	68.4	65.4	51.0-120			4.48	20
Fluorene	0.0500	0.0303	0.0302	60.6	60.4	47.0-120			0.331	20
Hexachlorobenzene	0.0500	0.0335	0.0331	67.0	66.2	44.0-120			1.20	20
Hexachloro-1,3-butadiene	0.0500	0.0243	0.0228	48.6	45.6	19.0-120			6.37	32
Hexachlorocyclopentadiene	0.0500	0.0197	0.0188	39.4	37.6	15.0-120			4.68	31
Hexachloroethane	0.0500	0.0235	0.0219	47.0	43.8	15.0-120			7.05	37
Indeno(1,2,3-cd)pyrene	0.0500	0.0352	0.0333	70.4	66.6	49.0-122			5.55	20
Isophorone	0.0500	0.0258	0.0248	51.6	49.6	36.0-120			3.95	23
Naphthalene	0.0500	0.0249	0.0232	49.8	46.4	27.0-120			7.07	27
Nitrobenzene	0.0500	0.0240	0.0221	48.0	44.2	27.0-120			8.24	29
n-Nitrosodimethylamine	0.0500	0.0197	0.0181	39.4	36.2	10.0-120			8.47	40
n-Nitrosodiphenylamine	0.0500	0.0311	0.0303	62.2	60.6	47.0-120			2.61	20
n-Nitrosodi-n-propylamine	0.0500	0.0268	0.0255	53.6	51.0	31.0-120			4.97	28
Phenanthrene	0.0500	0.0321	0.0314	64.2	62.8	46.0-120			2.20	20
Benzylbutyl phthalate	0.0500	0.0304	0.0294	60.8	58.8	43.0-121			3.34	20
Bis(2-ethylhexyl)phthalate	0.0500	0.0293	0.0283	58.6	56.6	43.0-122			3.47	20
Di-n-butyl phthalate	0.0500	0.0321	0.0312	64.2	62.4	49.0-121			2.84	20
Diethyl phthalate	0.0500	0.0319	0.0308	63.8	61.6	48.0-122			3.51	20
Dimethyl phthalate	0.0500	0.0319	0.0315	63.8	63.0	48.0-120			1.26	20
Di-n-octyl phthalate	0.0500	0.0309	0.0292	61.8	58.4	42.0-125			5.66	20
Pyrene	0.0500	0.0327	0.0321	65.4	64.2	47.0-120			1.85	20
1,2,4-Trichlorobenzene	0.0500	0.0239	0.0221	47.8	44.2	24.0-120			7.83	29
4-Chloro-3-methylphenol	0.0500	0.0258	0.0247	51.6	49.4	40.0-120			4.36	21
2-Chlorophenol	0.0500	0.0249	0.0225	49.8	45.0	25.0-120			10.1	35
2,4-Dichlorophenol	0.0500	0.0258	0.0236	51.6	47.2	36.0-120			8.91	26
2,4-Dimethylphenol	0.0500	0.0266	0.0249	53.2	49.8	33.0-120			6.60	26
4,6-Dinitro-2-methylphenol	0.0500	0.0350	0.0327	70.0	65.4	38.0-138			6.79	25
2,4-Dinitrophenol	0.0500	0.0318	0.0306	63.6	61.2	10.0-120			3.85	39
2-Nitrophenol	0.0500	0.0250	0.0223	50.0	44.6	31.0-120			11.4	29
4-Nitrophenol	0.0500	0.0733	0.0708	147	142	10.0-120	J4	J4	3.47	33
Pentachlorophenol	0.0500	0.0370	0.0342	74.0	68.4	23.0-120			7.87	25
Phenol	0.0500	0.0129	0.0120	25.8	24.0	10.0-120			7.23	36
2,4,6-Trichlorophenol	0.0500	0.0290	0.0275	58.0	55.0	42.0-120			5.31	23
(S) Nitrobenzene-d5				36.5	33.2	10.0-127				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3532688-1 05/28/20 00:38 • (LCSD) R3532688-2 05/28/20 00:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				54.6	52.4	10.0-130				
(S) p-Terphenyl-d14				63.4	61.5	10.0-128				
(S) Phenol-d5				21.5	19.1	10.0-120				
(S) 2-Fluorophenol				33.5	30.1	10.0-120				
(S) 2,4,6-Tribromophenol				70.5	64.5	10.0-155				

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier	Description
J0	J0: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration method criteria.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

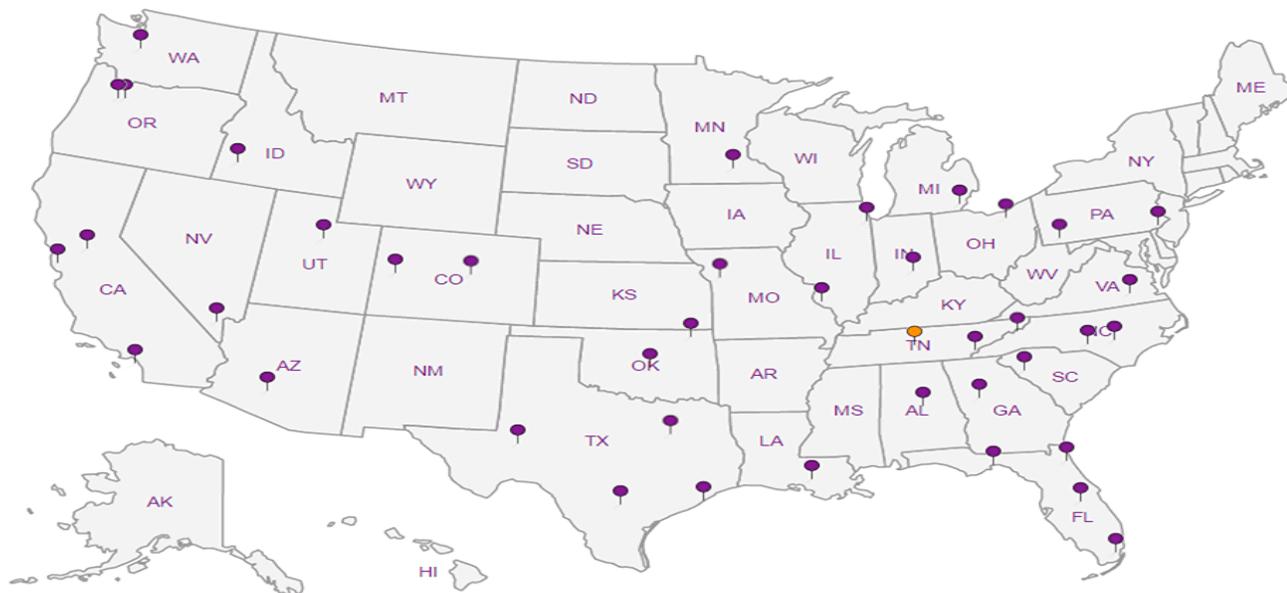
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

NRC Environmental - Portland, OR
 6211 N Ensign St.
 Portland, OR 97217

Billing Information:
 Accounts Payable
 6211 N Ensign St.
 Portland, OR 97217

Pres Chk	>12	L2	L2							
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Chain of Custody Page ___ of ___

 Pace Analytical®
 National Center for Testing & Innovation

Report to:
Andy Truong

Email To: ATruong@nrcc.com

Project Description:
Chromium Plating Facility Hydro Extraction

City/State Collected: **Portland/OR**

Please Circle:
 PT MT CT ET

Phone: **503-283-1150**
971-291-8162

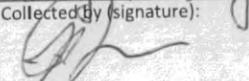
Client Project #
10-20-03
#152036

Lab Project #
NRCENVPOR-CPF

Collected by (print):
Andy Truong

Site/Facility ID #

P.O. #
152036.57793

Collected by (signature):


Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #
 Date Results Needed

Immediately Packed on Ice N ___ Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8270 100ml Amb NoPres	CN 250mlHDPEAmb-NaOH	Metals PP-13 250mlHDPE-HNO3	SULFIDE 250mlAmb-S-NaOH+ZnAc	SULFUR-SUB 125mlHDPE-NoPres	V8260C 40mlAmb-HCl
Settling Chamber #3		GW	2'	5/21/20	10:50	9	X	X	X	X	X	X
Aquip Main #4		GW	NA		11:11	9	X	X	X	X	X	X
Aquip Post #4		GW	NA		11:40	9	X	X	X	X	X	X
		GW				9	X	X	X	X	X	X
		GW				9	X	X	X	X	X	X
		GW				9	X	X	X	X	X	X
		GW				9	X	X	X	X	X	X
		GW				9	X	X	X	X	X	X
		GW				9	X	X	X	X	X	X

8270 100ml Amb NoPres	CN 250mlHDPEAmb-NaOH	Metals PP-13 250mlHDPE-HNO3	SULFIDE 250mlAmb-S-NaOH+ZnAc	SULFUR-SUB 125mlHDPE-NoPres	V8260C 40mlAmb-HCl
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12065 Lebanon Rd
 Mount Juliet, TN 37122
 Phone: 615-758-5858
 Phone: 800-767-5859
 Fax: 615-758-5859

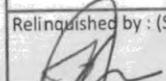


SDG # **12 21372**
J181
 Acctnum: **NRCENVPOR**
 Template: **T167968**
 Prelogin: **P774088**
 PM: **341 - John Hawkins**
 PB: **75-15-20**
 Shipped Via: **FedEx 2nd Day**

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____
 Samples returned via:
 UPS FedEx Courier
 Tracking # **1790 3027 7234**

Sample Receipt Checklist
 COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)


Date: **5/21/20**
 Time: **15:20**

Received by: (Signature)

Trip Blank Received: Yes No
 HCL / MeOH
 TBR

Relinquished by: (Signature)

Date: _____
 Time: _____

Received by: (Signature)

Temp: **11.7** °C
74.0 °F
 Bottles Received: **27**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____
 Time: _____

Received for lab by: (Signature)
M Pappas

Date: **5-22-20**
 Time: **9:00**

Hold: _____
 Condition: **NCF / OK**

NRC Environmental - Portland, OR

Sample Delivery Group: L1221377
Samples Received: 05/22/2020
Project Number: IO-20-03 #152036
Description: Hydro Extrusion

Report To: Andy Truong
6211 N Ensign St.
Portland, OR 97217

Entire Report Reviewed By:



John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	²Tc
Cn: Case Narrative	4	
Gl: Glossary of Terms	5	³Ss
Al: Accreditations & Locations	6	⁴Cn
Sc: Sample Chain of Custody	7	⁵Gl
		⁶Al
		⁷Sc

SAMPLE SUMMARY



SETTLING CHAMBERS L1221377-01 GW

Collected by: Andy Truong
 Collected date/time: 05/21/20 10:50
 Received date/time: 05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1481074	1	06/01/20 00:00	06/01/20 00:00	-	Minneapolis, MN 55414

AQUIP MAIN #4 L1221377-02 GW

Collected by: Andy Truong
 Collected date/time: 05/21/20 11:11
 Received date/time: 05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1481074	1	06/01/20 00:00	06/01/20 00:00	-	Minneapolis, MN 55414

AQUIP POST #4 L1221377-03 GW

Collected by: Andy Truong
 Collected date/time: 05/21/20 11:40
 Received date/time: 05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1481074	1	06/01/20 00:00	06/01/20 00:00	-	Minneapolis, MN 55414

1 Cp

2 Tc

3 Ss

4 Cn

5 Gl

6 Al

7 Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Gl
- ⁶ Al
- ⁷ Sc

Project Narrative

L1221377 -01, -02, -03 contains subout data that is included after the chain of custody.



Guide to Reading and Understanding Your Laboratory Report

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Abbreviations and Definitions

SDG	Sample Delivery Group.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Gl
- 6 Al
- 7 Sc

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

1 Cp

2 Tc

3 Ss

4 Cn

5 Gl

6 Al

7 Sc

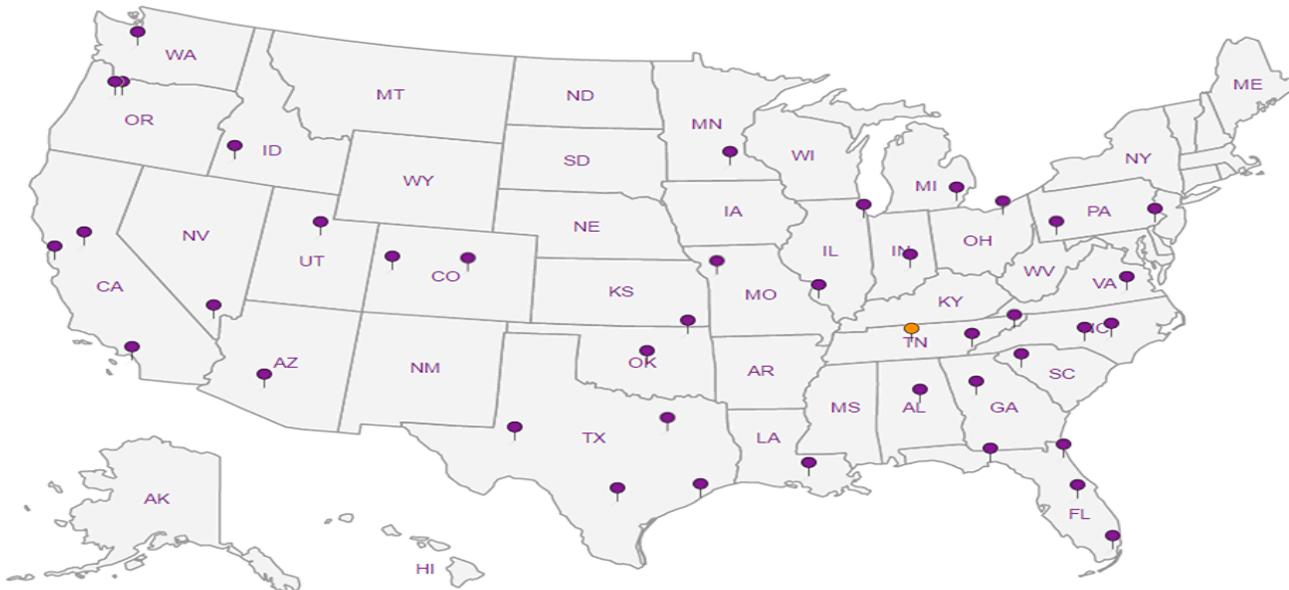
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



NRC Environmental - Portland, OR

6211 N Ensign St.
Portland, OR 97217

Billing Information:
Accounts Payable
6211 N Ensign St.
Portland, OR 97217

Report to:
Andy Truong

Email To: ATruong@nrcc.com

Project Description:
Chromium Plating Facility Hydro Extrusion

City/State Collected: **Portland/OR**

Please Circle:
 PT MT CT ET

Phone: 503-283-1150
971-291-8162

Client Project #
**10-20-03
#152036**

Lab Project #
NRCENVPOR-CPF

Collected by (print):
Andy Truong

Site/Facility ID #

P.O. #
152036.57793

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)

Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Date Results Needed

Immediately Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

Settling Chamber #3		GW	2'	5/21/20	10:50	9
Aquifer Main #4		GW	NA		11:11	9
Aquifer Post #4		GW	NA		11:40	9
		GW				9
		GW				9
		GW				9
		GW				9
		GW				9
		GW				9
		GW				9

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # **1790 3027 7234**

Relinquished by: (Signature)
[Signature]

Date: **5/21/20**
Time: **15:20**

Received by: (Signature)
[Signature]

Trip Blank Received: Yes No
HCL / MeOH
TBR

Relinquished by: (Signature)
[Signature]

Date: **5-22-20**
Time: **9:00**

Received by: (Signature)
[Signature]

Temp: **20.7** °C
Bottles Received: **27**

Relinquished by: (Signature)
[Signature]

Date: **5-22-20**
Time: **9:00**

Received by: (Signature)
MPappas

Date: **5-22-20**
Time: **9:00**

Sample Receipt Checklist
COC Seal Present/Intact: Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

If preservation required by Login: Date/Time
Hold:
Condition: NCF / **OK**

Analysis / Container / Preservative	Pres Chk
8270 100ml Amb NoPres	
CN 250mlHDPEAmb-NaOH	>12
Metals PP-13 250mlHDPE-HNO3	<12
SULFIDE 250mlAmb-S-NaOH+ZnAc	<12
SULFUR-SUB 125mlHDPE-NoPres	
V8260C 40mlAmb-HCl	

Chain of Custody Page **01**



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



SDG # **1221377**
J181
Acctnum: **NRCENVPOR**
Template: **T167968**
Prelogin: **P774088**
PM: **341 - John Hawkins**
PB: **73 5-15-20**
Shipped Via: **FedEX 2nd Day**

June 01, 2020

Client Services
Pace Analytical National
12065 Lebanon Road
Mount Juliet, TN 37122

RE: Project: IO-20-03 #152036 Hydro Ex
Pace Project No.: 10519323

Dear Client Services:

Enclosed are the analytical results for sample(s) received by the laboratory on May 27, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Sylvia Hunter
sylvia.hunter@pacelabs.com
1(612)607-1700
Project Manager

Enclosures

cc: Jimmy Huckaba, Pace Analytical National Center for
Testing & Innovation



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #: 74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10519323001	Settling Chambers	Water	05/21/20 10:50	05/27/20 09:00
10519323002	Aquip Main #4	Water	05/21/20 11:11	05/27/20 09:00
10519323003	Aquip Post #4	Water	05/21/20 11:40	05/27/20 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10519323001	Settling Chambers	EPA 6010B	IP	1	PASI-M
10519323002	Aquip Main #4	EPA 6010B	IP	1	PASI-M
10519323003	Aquip Post #4	EPA 6010B	IP	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

Sample: Settling Chambers		Lab ID: 10519323001	Collected: 05/21/20 10:50	Received: 05/27/20 09:00	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010B Preparation Method: EPA 3010A Pace Analytical Services - Minneapolis							
Sulfur	904	ug/L	500	53.3	1	05/31/20 10:00	06/01/20 12:47		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: Aquip Main #4									
Lab ID: 10519323002									
Collected: 05/21/20 11:11 Received: 05/27/20 09:00 Matrix: Water									
6010 MET ICP									
Analytical Method: EPA 6010B Preparation Method: EPA 3010A									
Pace Analytical Services - Minneapolis									
Sulfur	1150	ug/L	500	53.3	1	05/31/20 10:00	06/01/20 13:02		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Sample: Aquip Post #4 Lab ID: 10519323003 Collected: 05/21/20 11:40 Received: 05/27/20 09:00 Matrix: Water									
6010 MET ICP Analytical Method: EPA 6010B Preparation Method: EPA 3010A Pace Analytical Services - Minneapolis									
Sulfur	1020	ug/L	500	53.3	1	05/31/20 10:00	06/01/20 13:05		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

QC Batch: 678064

Analysis Method: EPA 6010B

QC Batch Method: EPA 3010A

Analysis Description: 6010B MET

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10519323001, 10519323002, 10519323003

METHOD BLANK: 3628951

Matrix: Water

Associated Lab Samples: 10519323001, 10519323002, 10519323003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfur	ug/L	ND	500	53.3	06/01/20 12:36	

LABORATORY CONTROL SAMPLE: 3628952

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfur	ug/L	20000	19300	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3628953 3628954

Parameter	Units	3628953		3628954		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10519323001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Sulfur	ug/L	904	20000	20000	20200	97	96	75-125	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519323

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10519323001	Settling Chambers	EPA 3010A	678064	EPA 6010B	678324
10519323002	Aquip Main #4	EPA 3010A	678064	EPA 6010B	678324
10519323003	Aquip Post #4	EPA 3010A	678064	EPA 6010B	678324

REPORT OF LABORATORY ANALYSIS

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Document Name: Document Revised: 27Mar2020
Sample Condition Upon Receipt (SCUR) - MN Page 1 of 1
 Document No.: Pace Analytical Services -
 ENV-FRM-MIN4-0150 Rev.00 Minneapolis

Sample Condition Upon Receipt

Client Name: Pace National Project #: **WO#: 10519323**

Courier: Fed Ex UPS USPS Client
 Pace Speedee Commercial See Exceptions

Tracking Number: 1790 3030 7436 PM: SH1 Due Date: 06/03/20
 CLIENT: ESC_TN

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Biological Tissue Frozen? Yes No N/A
 Packing Material: Bubble Wrap Bubble Bags None Other: pb Temp Blank? Yes No

Thermometer: T1(0461) T2(1336) T3(0459) Type of Ice: Wet Blue None Dry Melted

Did Samples Originate in West Virginia? Yes No Were All Container Temps Taken? Yes No N/A

Temp should be above freezing to 6°C Cooler Temp Read w/temp blank: 1.4 °C Average Corrected Temp (no temp blank only): 0 °C See Exceptions 1 Container

Correction Factor: 0.00 Cooler Temp Corrected w/temp blank: 1.4

USDA Regulated Soil: (N/A, water sample/Other: WV) Date/Initials of Person Examining Contents: MMK4 5/27/20
 Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, Hawaii and Puerto Rico? Yes No
 ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? Yes No
 If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

COMMENTS:

Chain of Custody Present and Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.	
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.	
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.	
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5.	<input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.	Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No See Exception <input type="checkbox"/>
Field Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	If no, write ID/Date/Time on Container Below:
Is sufficient information available to reconcile the samples to the COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.	Sample # <u>ENV-52110</u> <input type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other		13.	Positive for Res. Chlorine? <input type="checkbox"/> Yes <input type="checkbox"/> No Res. Chlorine <u>203614</u> 0-6 Roll <u>2325146</u> 0-14 Strip <u>WDD0341</u> pH Paper Lot#
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.	Pace Trip Blank Lot # (if purchased): Field Data Required? <input type="checkbox"/> Yes <input type="checkbox"/> No
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Extra labels present on soil VOA or WIDRO containers?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Headspace in VOA Vials (greater than 6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review:

Juliana Hunter

Date: 5/27/20

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: MMK4

NRC Environmental - Portland, OR

Sample Delivery Group: L1221382
Samples Received: 05/22/2020
Project Number: IO-20-03 #152036
Description: Hydro Extrusion

Report To: Andy Truong
6211 N Ensign St.
Portland, OR 97217

Entire Report Reviewed By:



John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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SAMPLE SUMMARY

GRATTIX BOX #6 L1221382-01 Solid

Collected by
Andy Truong
Collected date/time
05/21/20 11:55
Received date/time
05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1483366	1	05/29/20 10:42	05/29/20 10:51	KBC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1482372	1	05/27/20 16:00	05/27/20 20:07	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9030B	WG1484289	1	05/29/20 16:26	05/29/20 22:00	LDT	Mt. Juliet, TN
Mercury by Method 7471B	WG1482851	1	05/27/20 13:47	05/27/20 20:16	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1483203	1	05/28/20 06:28	05/28/20 17:45	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1482666	1	05/21/20 11:55	05/27/20 15:26	ADM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1482871	1	05/28/20 15:14	05/29/20 22:32	JNJ	Mt. Juliet, TN

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

GRATTIX BOX #9 L1221382-02 Solid

Collected by
Andy Truong
Collected date/time
05/21/20 12:15
Received date/time
05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1483366	1	05/29/20 10:42	05/29/20 10:51	KBC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1482372	1	05/27/20 16:00	05/27/20 20:08	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9030B	WG1484289	1	05/29/20 16:26	05/29/20 22:00	LDT	Mt. Juliet, TN
Mercury by Method 7471B	WG1482851	1	05/27/20 13:47	05/27/20 20:24	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1483203	1	05/28/20 06:28	05/28/20 17:48	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1482666	1	05/21/20 12:15	05/27/20 15:45	ADM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG1482871	1	05/28/20 15:14	05/29/20 22:13	JNJ	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	56.8		1	05/29/2020 10:51	WG1483366

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.440	1	05/27/2020 20:07	WG1482372

Wet Chemistry by Method 9030B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Sulfide	ND		44.0	1	05/29/2020 22:00	WG1484289

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	ND		0.0705	1	05/27/2020 20:16	WG1482851

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Antimony	ND		3.52	1	05/28/2020 17:45	WG1483203
Arsenic	ND		3.52	1	05/28/2020 17:45	WG1483203
Beryllium	ND		0.352	1	05/28/2020 17:45	WG1483203
Cadmium	ND		0.881	1	05/28/2020 17:45	WG1483203
Chromium	8.79		1.76	1	05/28/2020 17:45	WG1483203
Copper	13.2		3.52	1	05/28/2020 17:45	WG1483203
Lead	4.19		0.881	1	05/28/2020 17:45	WG1483203
Nickel	8.24		3.52	1	05/28/2020 17:45	WG1483203
Selenium	ND		3.52	1	05/28/2020 17:45	WG1483203
Silver	ND		1.76	1	05/28/2020 17:45	WG1483203
Thallium	ND		3.52	1	05/28/2020 17:45	WG1483203
Zinc	515		8.81	1	05/28/2020 17:45	WG1483203

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND	J4	0.0881	1	05/27/2020 15:26	WG1482666
Acrylonitrile	ND	J4	0.0220	1	05/27/2020 15:26	WG1482666
Benzene	ND		0.00176	1	05/27/2020 15:26	WG1482666
Bromobenzene	ND		0.0220	1	05/27/2020 15:26	WG1482666
Bromodichloromethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
Bromoform	ND		0.0440	1	05/27/2020 15:26	WG1482666
Bromomethane	ND		0.0220	1	05/27/2020 15:26	WG1482666
n-Butylbenzene	ND		0.0220	1	05/27/2020 15:26	WG1482666
sec-Butylbenzene	ND		0.0220	1	05/27/2020 15:26	WG1482666
tert-Butylbenzene	ND	J4	0.00881	1	05/27/2020 15:26	WG1482666
Carbon tetrachloride	ND		0.00881	1	05/27/2020 15:26	WG1482666
Chlorobenzene	ND		0.00440	1	05/27/2020 15:26	WG1482666
Chlorodibromomethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
Chloroethane	ND		0.00881	1	05/27/2020 15:26	WG1482666
Chloroform	ND		0.00440	1	05/27/2020 15:26	WG1482666
Chloromethane	ND		0.0220	1	05/27/2020 15:26	WG1482666
2-Chlorotoluene	ND	J4	0.00440	1	05/27/2020 15:26	WG1482666

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 05/21/20 11:55

L1221382

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chlorotoluene	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,2-Dibromo-3-Chloropropane	ND		0.0440	1	05/27/2020 15:26	WG1482666
1,2-Dibromoethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
Dibromomethane	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,2-Dichlorobenzene	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,3-Dichlorobenzene	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,4-Dichlorobenzene	ND		0.00881	1	05/27/2020 15:26	WG1482666
Dichlorodifluoromethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,1-Dichloroethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,2-Dichloroethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,1-Dichloroethene	ND		0.00440	1	05/27/2020 15:26	WG1482666
cis-1,2-Dichloroethene	ND		0.00440	1	05/27/2020 15:26	WG1482666
trans-1,2-Dichloroethene	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,2-Dichloropropane	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,1-Dichloropropene	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,3-Dichloropropane	ND		0.00881	1	05/27/2020 15:26	WG1482666
cis-1,3-Dichloropropene	ND		0.00440	1	05/27/2020 15:26	WG1482666
trans-1,3-Dichloropropene	ND		0.00881	1	05/27/2020 15:26	WG1482666
2,2-Dichloropropane	ND		0.00440	1	05/27/2020 15:26	WG1482666
Di-isopropyl ether	ND		0.00176	1	05/27/2020 15:26	WG1482666
Ethylbenzene	ND		0.00440	1	05/27/2020 15:26	WG1482666
Hexachloro-1,3-butadiene	ND		0.0440	1	05/27/2020 15:26	WG1482666
Isopropylbenzene	ND		0.00440	1	05/27/2020 15:26	WG1482666
p-Isopropyltoluene	ND		0.00881	1	05/27/2020 15:26	WG1482666
2-Butanone (MEK)	ND		0.176	1	05/27/2020 15:26	WG1482666
Methylene Chloride	ND		0.0440	1	05/27/2020 15:26	WG1482666
4-Methyl-2-pentanone (MIBK)	ND		0.0440	1	05/27/2020 15:26	WG1482666
Methyl tert-butyl ether	ND		0.00176	1	05/27/2020 15:26	WG1482666
Naphthalene	ND		0.0220	1	05/27/2020 15:26	WG1482666
n-Propylbenzene	ND		0.00881	1	05/27/2020 15:26	WG1482666
Styrene	ND		0.0220	1	05/27/2020 15:26	WG1482666
1,1,1,2-Tetrachloroethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,1,2,2-Tetrachloroethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,1,2-Trichlorotrifluoroethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
Tetrachloroethene	ND		0.00440	1	05/27/2020 15:26	WG1482666
Toluene	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,2,3-Trichlorobenzene	ND		0.0220	1	05/27/2020 15:26	WG1482666
1,2,4-Trichlorobenzene	ND		0.0220	1	05/27/2020 15:26	WG1482666
1,1,1-Trichloroethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,1,2-Trichloroethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
Trichloroethene	ND		0.00176	1	05/27/2020 15:26	WG1482666
Trichlorofluoromethane	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,2,3-Trichloropropane	ND		0.0220	1	05/27/2020 15:26	WG1482666
1,2,4-Trimethylbenzene	ND		0.00881	1	05/27/2020 15:26	WG1482666
1,2,3-Trimethylbenzene	ND		0.00881	1	05/27/2020 15:26	WG1482666
Vinyl chloride	ND		0.00440	1	05/27/2020 15:26	WG1482666
1,3,5-Trimethylbenzene	ND		0.00881	1	05/27/2020 15:26	WG1482666
Xylenes, Total	ND		0.0115	1	05/27/2020 15:26	WG1482666
(S) Toluene-d8	104		75.0-131		05/27/2020 15:26	WG1482666
(S) 4-Bromofluorobenzene	95.4		67.0-138		05/27/2020 15:26	WG1482666
(S) 1,2-Dichloroethane-d4	100		70.0-130		05/27/2020 15:26	WG1482666

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 05/21/20 11:55

L1221382

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Acenaphthylene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Anthracene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Benzo(a)anthracene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Benzo(b)fluoranthene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Benzo(k)fluoranthene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Benzo(g,h,i)perylene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Benzo(a)pyrene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Bis(2-chloroethoxy)methane	ND		0.587	1	05/29/2020 22:32	WG1482871
Bis(2-chloroethyl)ether	ND		0.587	1	05/29/2020 22:32	WG1482871
2,2-Oxybis(1-Chloropropane)	ND		0.587	1	05/29/2020 22:32	WG1482871
4-Bromophenyl-phenylether	ND		0.587	1	05/29/2020 22:32	WG1482871
2-Chloronaphthalene	ND		0.0587	1	05/29/2020 22:32	WG1482871
4-Chlorophenyl-phenylether	ND		0.587	1	05/29/2020 22:32	WG1482871
Chrysene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Dibenz(a,h)anthracene	ND		0.0587	1	05/29/2020 22:32	WG1482871
3,3-Dichlorobenzidine	ND		0.587	1	05/29/2020 22:32	WG1482871
2,4-Dinitrotoluene	ND		0.587	1	05/29/2020 22:32	WG1482871
2,6-Dinitrotoluene	ND		0.587	1	05/29/2020 22:32	WG1482871
Fluoranthene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Fluorene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Hexachlorobenzene	ND		0.587	1	05/29/2020 22:32	WG1482871
Hexachloro-1,3-butadiene	ND		0.587	1	05/29/2020 22:32	WG1482871
Hexachlorocyclopentadiene	ND		0.587	1	05/29/2020 22:32	WG1482871
Hexachloroethane	ND		0.587	1	05/29/2020 22:32	WG1482871
Indeno(1,2,3-cd)pyrene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Isophorone	ND		0.587	1	05/29/2020 22:32	WG1482871
Naphthalene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Nitrobenzene	ND		0.587	1	05/29/2020 22:32	WG1482871
n-Nitrosodimethylamine	ND		0.587	1	05/29/2020 22:32	WG1482871
n-Nitrosodiphenylamine	ND		0.587	1	05/29/2020 22:32	WG1482871
n-Nitrosodi-n-propylamine	ND		0.587	1	05/29/2020 22:32	WG1482871
Phenanthrene	ND		0.0587	1	05/29/2020 22:32	WG1482871
Pyridine	ND		0.587	1	05/29/2020 22:32	WG1482871
Benzylbutyl phthalate	ND		0.587	1	05/29/2020 22:32	WG1482871
Bis(2-ethylhexyl)phthalate	ND		0.587	1	05/29/2020 22:32	WG1482871
Di-n-butyl phthalate	ND		0.587	1	05/29/2020 22:32	WG1482871
Diethyl phthalate	ND		0.587	1	05/29/2020 22:32	WG1482871
Dimethyl phthalate	ND		0.587	1	05/29/2020 22:32	WG1482871
Di-n-octyl phthalate	ND		0.587	1	05/29/2020 22:32	WG1482871
Pyrene	ND		0.0587	1	05/29/2020 22:32	WG1482871
1,2,4-Trichlorobenzene	ND		0.587	1	05/29/2020 22:32	WG1482871
4-Chloro-3-methylphenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2-Chlorophenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2,4-Dichlorophenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2,4-Dimethylphenol	ND		0.587	1	05/29/2020 22:32	WG1482871
4,6-Dinitro-2-methylphenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2,4-Dinitrophenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2-Methylphenol	ND		0.587	1	05/29/2020 22:32	WG1482871
3&4-Methyl Phenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2-Nitrophenol	ND		0.587	1	05/29/2020 22:32	WG1482871
4-Nitrophenol	ND		0.587	1	05/29/2020 22:32	WG1482871
Pentachlorophenol	ND		0.587	1	05/29/2020 22:32	WG1482871
Phenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2,4,6-Trichlorophenol	ND		0.587	1	05/29/2020 22:32	WG1482871
2,4,5-Trichlorophenol	ND		0.587	1	05/29/2020 22:32	WG1482871

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 05/21/20 11:55

L1221382

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2-Fluorophenol	68.5		12.0-120		05/29/2020 22:32	WG1482871
(S) Phenol-d5	64.4		10.0-120		05/29/2020 22:32	WG1482871
(S) Nitrobenzene-d5	58.5		10.0-122		05/29/2020 22:32	WG1482871
(S) 2-Fluorobiphenyl	62.7		15.0-120		05/29/2020 22:32	WG1482871
(S) 2,4,6-Tribromophenol	89.1		10.0-127		05/29/2020 22:32	WG1482871
(S) p-Terphenyl-d14	67.0		10.0-120		05/29/2020 22:32	WG1482871

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
Total Solids	62.9		1	05/29/2020 10:51	WG1483366

1 Cp

2 Tc

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Cyanide	ND		0.397	1	05/27/2020 20:08	WG1482372

3 Ss

4 Cn

Wet Chemistry by Method 9030B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Sulfide	ND		39.7	1	05/29/2020 22:00	WG1484289

5 Sr

6 Qc

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Mercury	ND		0.0636	1	05/27/2020 20:24	WG1482851

7 Gl

8 Al

Metals (ICP) by Method 6010D

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Antimony	ND		3.18	1	05/28/2020 17:48	WG1483203
Arsenic	ND		3.18	1	05/28/2020 17:48	WG1483203
Beryllium	ND		0.318	1	05/28/2020 17:48	WG1483203
Cadmium	0.889		0.795	1	05/28/2020 17:48	WG1483203
Chromium	17.3		1.59	1	05/28/2020 17:48	WG1483203
Copper	29.4		3.18	1	05/28/2020 17:48	WG1483203
Lead	3.09		0.795	1	05/28/2020 17:48	WG1483203
Nickel	5.23		3.18	1	05/28/2020 17:48	WG1483203
Selenium	ND		3.18	1	05/28/2020 17:48	WG1483203
Silver	ND		1.59	1	05/28/2020 17:48	WG1483203
Thallium	ND		3.18	1	05/28/2020 17:48	WG1483203
Zinc	692		7.95	1	05/28/2020 17:48	WG1483203

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
Acetone	ND	J4	0.0795	1	05/27/2020 15:45	WG1482666
Acrylonitrile	ND	J4	0.0199	1	05/27/2020 15:45	WG1482666
Benzene	ND		0.00159	1	05/27/2020 15:45	WG1482666
Bromobenzene	ND		0.0199	1	05/27/2020 15:45	WG1482666
Bromodichloromethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
Bromoform	ND		0.0397	1	05/27/2020 15:45	WG1482666
Bromomethane	ND		0.0199	1	05/27/2020 15:45	WG1482666
n-Butylbenzene	ND		0.0199	1	05/27/2020 15:45	WG1482666
sec-Butylbenzene	ND		0.0199	1	05/27/2020 15:45	WG1482666
tert-Butylbenzene	ND	J4	0.00795	1	05/27/2020 15:45	WG1482666
Carbon tetrachloride	ND		0.00795	1	05/27/2020 15:45	WG1482666
Chlorobenzene	ND		0.00397	1	05/27/2020 15:45	WG1482666
Chlorodibromomethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
Chloroethane	ND		0.00795	1	05/27/2020 15:45	WG1482666
Chloroform	ND		0.00397	1	05/27/2020 15:45	WG1482666
Chloromethane	ND		0.0199	1	05/27/2020 15:45	WG1482666
2-Chlorotoluene	ND	J4	0.00397	1	05/27/2020 15:45	WG1482666



Collected date/time: 05/21/20 12:15

L1221382

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
4-Chlorotoluene	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,2-Dibromo-3-Chloropropane	ND		0.0397	1	05/27/2020 15:45	WG1482666
1,2-Dibromoethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
Dibromomethane	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,2-Dichlorobenzene	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,3-Dichlorobenzene	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,4-Dichlorobenzene	ND		0.00795	1	05/27/2020 15:45	WG1482666
Dichlorodifluoromethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,1-Dichloroethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,2-Dichloroethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,1-Dichloroethene	ND		0.00397	1	05/27/2020 15:45	WG1482666
cis-1,2-Dichloroethene	ND		0.00397	1	05/27/2020 15:45	WG1482666
trans-1,2-Dichloroethene	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,2-Dichloropropane	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,1-Dichloropropene	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,3-Dichloropropane	ND		0.00795	1	05/27/2020 15:45	WG1482666
cis-1,3-Dichloropropene	ND		0.00397	1	05/27/2020 15:45	WG1482666
trans-1,3-Dichloropropene	ND		0.00795	1	05/27/2020 15:45	WG1482666
2,2-Dichloropropane	ND		0.00397	1	05/27/2020 15:45	WG1482666
Di-isopropyl ether	ND		0.00159	1	05/27/2020 15:45	WG1482666
Ethylbenzene	ND		0.00397	1	05/27/2020 15:45	WG1482666
Hexachloro-1,3-butadiene	ND		0.0397	1	05/27/2020 15:45	WG1482666
Isopropylbenzene	ND		0.00397	1	05/27/2020 15:45	WG1482666
p-Isopropyltoluene	ND		0.00795	1	05/27/2020 15:45	WG1482666
2-Butanone (MEK)	ND		0.159	1	05/27/2020 15:45	WG1482666
Methylene Chloride	ND		0.0397	1	05/27/2020 15:45	WG1482666
4-Methyl-2-pentanone (MIBK)	ND		0.0397	1	05/27/2020 15:45	WG1482666
Methyl tert-butyl ether	ND		0.00159	1	05/27/2020 15:45	WG1482666
Naphthalene	ND		0.0199	1	05/27/2020 15:45	WG1482666
n-Propylbenzene	ND		0.00795	1	05/27/2020 15:45	WG1482666
Styrene	ND		0.0199	1	05/27/2020 15:45	WG1482666
1,1,1,2-Tetrachloroethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,1,2,2-Tetrachloroethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,1,2-Trichlorotrifluoroethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
Tetrachloroethene	ND		0.00397	1	05/27/2020 15:45	WG1482666
Toluene	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,2,3-Trichlorobenzene	ND		0.0199	1	05/27/2020 15:45	WG1482666
1,2,4-Trichlorobenzene	ND		0.0199	1	05/27/2020 15:45	WG1482666
1,1,1-Trichloroethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,1,2-Trichloroethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
Trichloroethene	ND		0.00159	1	05/27/2020 15:45	WG1482666
Trichlorofluoromethane	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,2,3-Trichloropropane	ND		0.0199	1	05/27/2020 15:45	WG1482666
1,2,4-Trimethylbenzene	ND		0.00795	1	05/27/2020 15:45	WG1482666
1,2,3-Trimethylbenzene	ND		0.00795	1	05/27/2020 15:45	WG1482666
Vinyl chloride	ND		0.00397	1	05/27/2020 15:45	WG1482666
1,3,5-Trimethylbenzene	ND		0.00795	1	05/27/2020 15:45	WG1482666
Xylenes, Total	ND		0.0103	1	05/27/2020 15:45	WG1482666
(S) Toluene-d8	104		75.0-131		05/27/2020 15:45	WG1482666
(S) 4-Bromofluorobenzene	94.4		67.0-138		05/27/2020 15:45	WG1482666
(S) 1,2-Dichloroethane-d4	95.3		70.0-130		05/27/2020 15:45	WG1482666

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 05/21/20 12:15

L1221382

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Acenaphthylene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Anthracene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Benzo(a)anthracene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Benzo(b)fluoranthene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Benzo(k)fluoranthene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Benzo(g,h,i)perylene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Benzo(a)pyrene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Bis(2-chloroethoxy)methane	ND		0.529	1	05/29/2020 22:13	WG1482871
Bis(2-chloroethyl)ether	ND		0.529	1	05/29/2020 22:13	WG1482871
2,2-Oxybis(1-Chloropropane)	ND		0.529	1	05/29/2020 22:13	WG1482871
4-Bromophenyl-phenylether	ND		0.529	1	05/29/2020 22:13	WG1482871
2-Chloronaphthalene	ND		0.0529	1	05/29/2020 22:13	WG1482871
4-Chlorophenyl-phenylether	ND		0.529	1	05/29/2020 22:13	WG1482871
Chrysene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Dibenz(a,h)anthracene	ND		0.0529	1	05/29/2020 22:13	WG1482871
3,3-Dichlorobenzidine	ND		0.529	1	05/29/2020 22:13	WG1482871
2,4-Dinitrotoluene	ND		0.529	1	05/29/2020 22:13	WG1482871
2,6-Dinitrotoluene	ND		0.529	1	05/29/2020 22:13	WG1482871
Fluoranthene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Fluorene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Hexachlorobenzene	ND		0.529	1	05/29/2020 22:13	WG1482871
Hexachloro-1,3-butadiene	ND		0.529	1	05/29/2020 22:13	WG1482871
Hexachlorocyclopentadiene	ND		0.529	1	05/29/2020 22:13	WG1482871
Hexachloroethane	ND		0.529	1	05/29/2020 22:13	WG1482871
Indeno(1,2,3-cd)pyrene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Isophorone	ND		0.529	1	05/29/2020 22:13	WG1482871
Naphthalene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Nitrobenzene	ND		0.529	1	05/29/2020 22:13	WG1482871
n-Nitrosodimethylamine	ND		0.529	1	05/29/2020 22:13	WG1482871
n-Nitrosodiphenylamine	ND		0.529	1	05/29/2020 22:13	WG1482871
n-Nitrosodi-n-propylamine	ND		0.529	1	05/29/2020 22:13	WG1482871
Phenanthrene	ND		0.0529	1	05/29/2020 22:13	WG1482871
Pyridine	ND		0.529	1	05/29/2020 22:13	WG1482871
Benzylbutyl phthalate	ND		0.529	1	05/29/2020 22:13	WG1482871
Bis(2-ethylhexyl)phthalate	ND		0.529	1	05/29/2020 22:13	WG1482871
Di-n-butyl phthalate	ND		0.529	1	05/29/2020 22:13	WG1482871
Diethyl phthalate	ND		0.529	1	05/29/2020 22:13	WG1482871
Dimethyl phthalate	ND		0.529	1	05/29/2020 22:13	WG1482871
Di-n-octyl phthalate	ND		0.529	1	05/29/2020 22:13	WG1482871
Pyrene	ND		0.0529	1	05/29/2020 22:13	WG1482871
1,2,4-Trichlorobenzene	ND		0.529	1	05/29/2020 22:13	WG1482871
4-Chloro-3-methylphenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2-Chlorophenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2,4-Dichlorophenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2,4-Dimethylphenol	ND		0.529	1	05/29/2020 22:13	WG1482871
4,6-Dinitro-2-methylphenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2,4-Dinitrophenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2-Methylphenol	ND		0.529	1	05/29/2020 22:13	WG1482871
3&4-Methyl Phenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2-Nitrophenol	ND		0.529	1	05/29/2020 22:13	WG1482871
4-Nitrophenol	ND		0.529	1	05/29/2020 22:13	WG1482871
Pentachlorophenol	ND		0.529	1	05/29/2020 22:13	WG1482871
Phenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2,4,6-Trichlorophenol	ND		0.529	1	05/29/2020 22:13	WG1482871
2,4,5-Trichlorophenol	ND		0.529	1	05/29/2020 22:13	WG1482871

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 05/21/20 12:15

L1221382

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) 2-Fluorophenol	66.7		12.0-120		05/29/2020 22:13	WG1482871
(S) Phenol-d5	65.2		10.0-120		05/29/2020 22:13	WG1482871
(S) Nitrobenzene-d5	54.8		10.0-122		05/29/2020 22:13	WG1482871
(S) 2-Fluorobiphenyl	60.0		15.0-120		05/29/2020 22:13	WG1482871
(S) 2,4,6-Tribromophenol	83.8		10.0-127		05/29/2020 22:13	WG1482871
(S) p-Terphenyl-d14	67.3		10.0-120		05/29/2020 22:13	WG1482871

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3533192-1 05/29/20 10:51

Analyte	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
	%		%	%
Total Solids	0.00100			

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R3533192-2 05/29/20 10:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3532323-1 05/27/20 19:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0733	0.250

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R3532323-2 05/27/20 19:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.72	109	85.0-115	

⁷Gl

⁸Al

⁹Sc

L1221382-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1221382-02 05/27/20 20:08 • (MS) R3532323-4 05/27/20 20:09 • (MSD) R3532323-5 05/27/20 20:10

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	2.65	ND	2.66	2.58	89.3	86.5	1	75.0-125			2.80	20



Method Blank (MB)

(MB) R3533263-1 05/29/20 22:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Sulfide	U		7.63	25.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1221382-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1221382-02 05/29/20 22:00 • (DUP) R3533263-4 05/29/20 22:00

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3533263-2 05/29/20 22:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfide	100	92.1	92.1	70.0-130	

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3533263-5 05/29/20 22:00 • (MSD) R3533263-6 05/29/20 22:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfide	100		94.8	94.1	94.8	94.1	1	70.0-130			0.746	20



Method Blank (MB)

(MB) R3532338-1 05/27/20 19:44

Analyte	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

¹ Cp

² Tc

³ Ss

Laboratory Control Sample (LCS)

(LCS) R3532338-2 05/27/20 19:46

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
	mg/kg	mg/kg	%	%	
Mercury	0.500	0.442	88.4	80.0-120	

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3532813-1 05/28/20 17:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Antimony	U		0.500	2.00
Arsenic	U		0.460	2.00
Beryllium	U		0.0800	0.200
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Nickel	U		0.490	2.00
Selenium	U		0.617	2.00
Silver	U		0.228	1.00
Thallium	U		0.354	2.00
Zinc	U		0.939	5.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS)

(LCS) R3532813-2 05/28/20 17:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	100	102	102	80.0-120	
Arsenic	100	99.2	99.2	80.0-120	
Beryllium	100	106	106	80.0-120	
Cadmium	100	103	103	80.0-120	
Chromium	100	106	106	80.0-120	
Copper	100	103	103	80.0-120	
Lead	100	102	102	80.0-120	
Nickel	100	104	104	80.0-120	
Selenium	100	107	107	80.0-120	
Silver	20.0	19.5	97.7	80.0-120	
Thallium	100	102	102	80.0-120	
Zinc	100	102	102	80.0-120	



Method Blank (MB)

(MB) R3532474-3 05/27/20 09:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0365	0.0500
Acrylonitrile	U		0.00361	0.0125
Benzene	U		0.000467	0.00100
Bromobenzene	U		0.000900	0.0125
Bromodichloromethane	U		0.000725	0.00250
Bromoform	U		0.00117	0.0250
Bromomethane	U		0.00197	0.0125
n-Butylbenzene	U		0.00525	0.0125
sec-Butylbenzene	U		0.00288	0.0125
tert-Butylbenzene	U		0.00195	0.00500
Carbon tetrachloride	U		0.000898	0.00500
Chlorobenzene	U		0.000210	0.00250
Chlorodibromomethane	U		0.000612	0.00250
Chloroethane	U		0.00170	0.00500
Chloroform	U		0.00103	0.00250
Chloromethane	U		0.00435	0.0125
2-Chlorotoluene	U		0.000865	0.00250
4-Chlorotoluene	U		0.000450	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00390	0.0250
1,2-Dibromoethane	U		0.000648	0.00250
Dibromomethane	U		0.000750	0.00500
1,2-Dichlorobenzene	U		0.000425	0.00500
1,3-Dichlorobenzene	U		0.000600	0.00500
1,4-Dichlorobenzene	U		0.000700	0.00500
Dichlorodifluoromethane	U		0.00161	0.00250
1,1-Dichloroethane	U		0.000491	0.00250
1,2-Dichloroethane	U		0.000649	0.00250
1,1-Dichloroethene	U		0.000606	0.00250
cis-1,2-Dichloroethene	U		0.000734	0.00250
trans-1,2-Dichloroethene	U		0.00104	0.00500
1,2-Dichloropropane	U		0.00142	0.00500
1,1-Dichloropropene	U		0.000809	0.00250
1,3-Dichloropropane	U		0.000501	0.00500
cis-1,3-Dichloropropene	U		0.000757	0.00250
trans-1,3-Dichloropropene	U		0.00114	0.00500
2,2-Dichloropropane	U		0.00138	0.00250
Di-isopropyl ether	U		0.000410	0.00100
Ethylbenzene	U		0.000737	0.00250
Hexachloro-1,3-butadiene	U		0.00600	0.0250
Isopropylbenzene	U		0.000425	0.00250

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3532474-3 05/27/20 09:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00255	0.00500
2-Butanone (MEK)	0.0864	J	0.0635	0.100
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.00228	0.0250
Methyl tert-butyl ether	U		0.000350	0.00100
Naphthalene	U		0.00488	0.0125
n-Propylbenzene	U		0.000950	0.00500
Styrene	U		0.000229	0.0125
1,1,1,2-Tetrachloroethane	U		0.000948	0.00250
1,1,2,2-Tetrachloroethane	U		0.000695	0.00250
Tetrachloroethene	U		0.000896	0.00250
Toluene	U		0.00130	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000754	0.00250
1,2,3-Trichlorobenzene	U		0.00733	0.0125
1,2,4-Trichlorobenzene	U		0.00440	0.0125
1,1,1-Trichloroethane	U		0.000923	0.00250
1,1,2-Trichloroethane	U		0.000597	0.00250
Trichloroethene	U		0.000584	0.00100
Trichlorofluoromethane	U		0.000827	0.00250
1,2,3-Trichloropropane	U		0.00162	0.0125
1,2,3-Trimethylbenzene	U		0.00158	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Vinyl chloride	U		0.00116	0.00250
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	103			75.0-131
(S) 4-Bromofluorobenzene	90.9			67.0-138
(S) 1,2-Dichloroethane-d4	92.5			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3532474-1 05/27/20 08:39 • (LCSD) R3532474-2 05/27/20 08:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.625	1.60	1.65	256	264	10.0-160	J4	J4	3.08	31
Acrylonitrile	0.625	1.02	1.05	163	168	45.0-153	J4	J4	2.90	22
Benzene	0.125	0.117	0.118	93.6	94.4	70.0-123			0.851	20
Bromobenzene	0.125	0.109	0.107	87.2	85.6	73.0-121			1.85	20
Bromodichloromethane	0.125	0.118	0.122	94.4	97.6	73.0-121			3.33	20



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3532474-1 05/27/20 08:39 • (LCSD) R3532474-2 05/27/20 08:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Bromoform	0.125	0.104	0.114	83.2	91.2	64.0-132			9.17	20
Bromomethane	0.125	0.128	0.135	102	108	56.0-147			5.32	20
n-Butylbenzene	0.125	0.113	0.112	90.4	89.6	68.0-135			0.889	20
sec-Butylbenzene	0.125	0.103	0.100	82.4	80.0	74.0-130			2.96	20
tert-Butylbenzene	0.125	0.0945	0.0925	75.6	74.0	75.0-127		J4	2.14	20
Carbon tetrachloride	0.125	0.146	0.151	117	121	66.0-128			3.37	20
Chlorobenzene	0.125	0.120	0.121	96.0	96.8	76.0-128			0.830	20
Chlorodibromomethane	0.125	0.135	0.137	108	110	74.0-127			1.47	20
Chloroethane	0.125	0.153	0.157	122	126	61.0-134			2.58	20
Chloroform	0.125	0.138	0.142	110	114	72.0-123			2.86	20
Chloromethane	0.125	0.105	0.116	84.0	92.8	51.0-138			9.95	20
2-Chlorotoluene	0.125	0.156	0.150	125	120	75.0-124	J4		3.92	20
4-Chlorotoluene	0.125	0.129	0.125	103	100	75.0-124			3.15	20
1,2-Dibromo-3-Chloropropane	0.125	0.128	0.128	102	102	59.0-130			0.000	20
1,2-Dibromoethane	0.125	0.123	0.128	98.4	102	74.0-128			3.98	20
Dibromomethane	0.125	0.124	0.121	99.2	96.8	75.0-122			2.45	20
1,2-Dichlorobenzene	0.125	0.117	0.117	93.6	93.6	76.0-124			0.000	20
1,3-Dichlorobenzene	0.125	0.140	0.139	112	111	76.0-125			0.717	20
1,4-Dichlorobenzene	0.125	0.105	0.107	84.0	85.6	77.0-121			1.89	20
Dichlorodifluoromethane	0.125	0.139	0.146	111	117	43.0-156			4.91	20
1,1-Dichloroethane	0.125	0.146	0.151	117	121	70.0-127			3.37	20
1,2-Dichloroethane	0.125	0.141	0.141	113	113	65.0-131			0.000	20
1,1-Dichloroethene	0.125	0.135	0.138	108	110	65.0-131			2.20	20
cis-1,2-Dichloroethene	0.125	0.110	0.112	88.0	89.6	73.0-125			1.80	20
trans-1,2-Dichloroethene	0.125	0.118	0.119	94.4	95.2	71.0-125			0.844	20
1,2-Dichloropropane	0.125	0.125	0.125	100	100	74.0-125			0.000	20
1,1-Dichloropropene	0.125	0.117	0.117	93.6	93.6	73.0-125			0.000	20
1,3-Dichloropropane	0.125	0.118	0.119	94.4	95.2	80.0-125			0.844	20
cis-1,3-Dichloropropene	0.125	0.111	0.118	88.8	94.4	76.0-127			6.11	20
trans-1,3-Dichloropropene	0.125	0.116	0.120	92.8	96.0	73.0-127			3.39	20
2,2-Dichloropropane	0.125	0.146	0.146	117	117	59.0-135			0.000	20
Di-isopropyl ether	0.125	0.110	0.113	88.0	90.4	60.0-136			2.69	20
Ethylbenzene	0.125	0.110	0.113	88.0	90.4	74.0-126			2.69	20
Hexachloro-1,3-butadiene	0.125	0.133	0.139	106	111	57.0-150			4.41	20
Isopropylbenzene	0.125	0.110	0.112	88.0	89.6	72.0-127			1.80	20
p-Isopropyltoluene	0.125	0.0950	0.0935	76.0	74.8	72.0-133			1.59	20
2-Butanone (MEK)	0.625	0.961	0.978	154	156	30.0-160			1.75	24
Methylene Chloride	0.125	0.139	0.134	111	107	68.0-123			3.66	20
4-Methyl-2-pentanone (MIBK)	0.625	0.872	0.887	140	142	56.0-143			1.71	20
Methyl tert-butyl ether	0.125	0.149	0.151	119	121	66.0-132			1.33	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3532474-1 05/27/20 08:39 • (LCSD) R3532474-2 05/27/20 08:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.125	0.117	0.124	93.6	99.2	59.0-130			5.81	20
n-Propylbenzene	0.125	0.119	0.117	95.2	93.6	74.0-126			1.69	20
Styrene	0.125	0.110	0.111	88.0	88.8	72.0-127			0.905	20
1,1,1,2-Tetrachloroethane	0.125	0.0988	0.100	79.0	80.0	74.0-129			1.21	20
1,1,2,2-Tetrachloroethane	0.125	0.104	0.105	83.2	84.0	68.0-128			0.957	20
Tetrachloroethene	0.125	0.120	0.124	96.0	99.2	70.0-136			3.28	20
Toluene	0.125	0.115	0.112	92.0	89.6	75.0-121			2.64	20
1,1,2-Trichlorotrifluoroethane	0.125	0.144	0.141	115	113	61.0-139			2.11	20
1,2,3-Trichlorobenzene	0.125	0.108	0.113	86.4	90.4	59.0-139			4.52	20
1,2,4-Trichlorobenzene	0.125	0.113	0.121	90.4	96.8	62.0-137			6.84	20
1,1,1-Trichloroethane	0.125	0.102	0.102	81.6	81.6	69.0-126			0.000	20
1,1,2-Trichloroethane	0.125	0.133	0.139	106	111	78.0-123			4.41	20
Trichloroethene	0.125	0.132	0.132	106	106	76.0-126			0.000	20
Trichlorofluoromethane	0.125	0.147	0.150	118	120	61.0-142			2.02	20
1,2,3-Trichloropropane	0.125	0.160	0.157	128	126	67.0-129			1.89	20
1,2,3-Trimethylbenzene	0.125	0.102	0.103	81.6	82.4	74.0-124			0.976	20
1,2,4-Trimethylbenzene	0.125	0.105	0.106	84.0	84.8	70.0-126			0.948	20
1,3,5-Trimethylbenzene	0.125	0.121	0.122	96.8	97.6	73.0-127			0.823	20
Vinyl chloride	0.125	0.128	0.130	102	104	63.0-134			1.55	20
Xylenes, Total	0.375	0.359	0.360	95.7	96.0	72.0-127			0.278	20
(S) Toluene-d8				98.4	101	75.0-131				
(S) 4-Bromofluorobenzene				97.8	99.8	67.0-138				
(S) 1,2-Dichloroethane-d4				105	108	70.0-130				

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3533034-2 05/29/20 10:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00539	0.0333
Acenaphthylene	U		0.00469	0.0333
Anthracene	U		0.00593	0.0333
Benzo(a)anthracene	U		0.00587	0.0333
Benzo(b)fluoranthene	U		0.00621	0.0333
Benzo(k)fluoranthene	U		0.00592	0.0333
Benzo(g,h,i)perylene	U		0.00609	0.0333
Benzo(a)pyrene	U		0.00619	0.0333
Bis(2-chlorethoxy)methane	U		0.0100	0.333
Bis(2-chloroethyl)ether	U		0.0110	0.333
2,2-Oxybis(1-Chloropropane)	U		0.0144	0.333
4-Bromophenyl-phenylether	U		0.0117	0.333
2-Chloronaphthalene	U		0.00585	0.0333
4-Chlorophenyl-phenylether	U		0.0116	0.333
Chrysene	U		0.00662	0.0333
Dibenz(a,h)anthracene	U		0.00923	0.0333
3,3-Dichlorobenzidine	U		0.0123	0.333
2,4-Dinitrotoluene	U		0.00955	0.333
2,6-Dinitrotoluene	U		0.0109	0.333
Fluoranthene	U		0.00601	0.0333
Fluorene	U		0.00542	0.0333
Hexachlorobenzene	U		0.0118	0.333
Hexachloro-1,3-butadiene	U		0.0112	0.333
Hexachlorocyclopentadiene	U		0.0175	0.333
Hexachloroethane	U		0.0131	0.333
Indeno(1,2,3-cd)pyrene	U		0.00941	0.0333
Isophorone	U		0.0102	0.333
Naphthalene	U		0.00836	0.0333
Nitrobenzene	U		0.0116	0.333
n-Nitrosodimethylamine	U		0.0494	0.333
n-Nitrosodiphenylamine	U		0.0252	0.333
n-Nitrosodi-n-propylamine	U		0.0111	0.333
Phenanthrene	U		0.00661	0.0333
Benzylbutyl phthalate	U		0.0104	0.333
Bis(2-ethylhexyl)phthalate	U		0.0422	0.333
Di-n-butyl phthalate	U		0.0114	0.333
Diethyl phthalate	U		0.0110	0.333
Dimethyl phthalate	U		0.0706	0.333
Di-n-octyl phthalate	U		0.0225	0.333
Pyrene	U		0.00648	0.0333

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3533034-2 05/29/20 10:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Pyridine	U		0.0220	0.333
1,2,4-Trichlorobenzene	U		0.0104	0.333
4-Chloro-3-methylphenol	U		0.0108	0.333
2-Chlorophenol	U		0.0110	0.333
2-Methylphenol	U		0.0100	0.333
3&4-Methyl Phenol	U		0.0104	0.333
2,4-Dichlorophenol	U		0.00970	0.333
2,4-Dimethylphenol	U		0.00870	0.333
4,6-Dinitro-2-methylphenol	U		0.0755	0.333
2,4-Dinitrophenol	U		0.0779	0.333
2-Nitrophenol	U		0.0119	0.333
4-Nitrophenol	U		0.0104	0.333
Pentachlorophenol	U		0.00896	0.333
Phenol	U		0.0134	0.333
2,4,5-Trichlorophenol	U		0.0113	0.333
2,4,6-Trichlorophenol	U		0.0107	0.333
(S) Nitrobenzene-d5	64.6			10.0-122
(S) 2-Fluorobiphenyl	76.3			15.0-120
(S) p-Terphenyl-d14	87.4			10.0-120
(S) Phenol-d5	76.4			10.0-120
(S) 2-Fluorophenol	82.9			12.0-120
(S) 2,4,6-Tribromophenol	74.0			10.0-127

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS)

(LCS) R3533034-1 05/29/20 09:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.666	0.495	74.3	38.0-120	
Acenaphthylene	0.666	0.574	86.2	40.0-120	
Anthracene	0.666	0.518	77.8	42.0-120	
Benzo(a)anthracene	0.666	0.594	89.2	44.0-120	
Benzo(b)fluoranthene	0.666	0.561	84.2	43.0-120	
Benzo(k)fluoranthene	0.666	0.519	77.9	44.0-120	
Benzo(g,h,i)perylene	0.666	0.525	78.8	43.0-120	
Benzo(a)pyrene	0.666	0.598	89.8	45.0-120	
Bis(2-chlorethoxy)methane	0.666	0.476	71.5	20.0-120	
Bis(2-chloroethyl)ether	0.666	0.476	71.5	16.0-120	
2,2-Oxybis(1-Chloropropane)	0.666	0.472	70.9	23.0-120	



Laboratory Control Sample (LCS)

(LCS) R3533034-1 05/29/20 09:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
4-Bromophenyl-phenylether	0.666	0.476	71.5	40.0-120	
2-Chloronaphthalene	0.666	0.499	74.9	35.0-120	
4-Chlorophenyl-phenylether	0.666	0.528	79.3	40.0-120	
Chrysene	0.666	0.543	81.5	43.0-120	
Dibenz(a,h)anthracene	0.666	0.514	77.2	44.0-120	
3,3-Dichlorobenzidine	1.33	1.11	83.5	28.0-120	
2,4-Dinitrotoluene	0.666	0.626	94.0	45.0-120	
2,6-Dinitrotoluene	0.666	0.603	90.5	42.0-120	
Fluoranthene	0.666	0.546	82.0	44.0-120	
Fluorene	0.666	0.549	82.4	41.0-120	
Hexachlorobenzene	0.666	0.438	65.8	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.426	64.0	15.0-120	
Hexachlorocyclopentadiene	0.666	0.392	58.9	15.0-120	
Hexachloroethane	0.666	0.463	69.5	17.0-120	
Indeno(1,2,3-cd)pyrene	0.666	0.545	81.8	45.0-120	
Isophorone	0.666	0.455	68.3	23.0-120	
Naphthalene	0.666	0.474	71.2	18.0-120	
Nitrobenzene	0.666	0.477	71.6	17.0-120	
n-Nitrosodimethylamine	0.666	0.432	64.9	10.0-125	
n-Nitrosodiphenylamine	0.666	0.507	76.1	40.0-120	
n-Nitrosodi-n-propylamine	0.666	0.455	68.3	26.0-120	
Phenanthrene	0.666	0.494	74.2	42.0-120	
Benzylbutyl phthalate	0.666	0.690	104	40.0-120	
Bis(2-ethylhexyl)phthalate	0.666	0.659	98.9	41.0-120	
Di-n-butyl phthalate	0.666	0.586	88.0	43.0-120	
Diethyl phthalate	0.666	0.565	84.8	43.0-120	
Dimethyl phthalate	0.666	0.522	78.4	43.0-120	
Di-n-octyl phthalate	0.666	0.704	106	40.0-120	
Pyrene	0.666	0.583	87.5	41.0-120	
Pyridine	0.666	0.235	35.3	10.0-120	
1,2,4-Trichlorobenzene	0.666	0.462	69.4	17.0-120	
4-Chloro-3-methylphenol	0.666	0.539	80.9	28.0-120	
2-Chlorophenol	0.666	0.536	80.5	28.0-120	
2-Methylphenol	0.666	0.576	86.5	35.0-120	
3&4-Methyl Phenol	0.666	0.614	92.2	42.0-120	
2,4-Dichlorophenol	0.666	0.540	81.1	25.0-120	
2,4-Dimethylphenol	0.666	0.555	83.3	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.460	69.1	16.0-120	
2,4-Dinitrophenol	0.666	0.379	56.9	10.0-120	
2-Nitrophenol	0.666	0.564	84.7	20.0-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Laboratory Control Sample (LCS)

(LCS) R3533034-1 05/29/20 09:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
4-Nitrophenol	0.666	0.627	94.1	27.0-120	
Pentachlorophenol	0.666	0.604	90.7	29.0-120	
Phenol	0.666	0.500	75.1	28.0-120	
2,4,5-Trichlorophenol	0.666	0.605	90.8	38.0-120	
2,4,6-Trichlorophenol	0.666	0.529	79.4	37.0-120	
<i>(S) Nitrobenzene-d5</i>			64.6	10.0-122	
<i>(S) 2-Fluorobiphenyl</i>			78.1	15.0-120	
<i>(S) p-Terphenyl-d14</i>			90.1	10.0-120	
<i>(S) Phenol-d5</i>			79.4	10.0-120	
<i>(S) 2-Fluorophenol</i>			87.4	12.0-120	
<i>(S) 2,4,6-Tribromophenol</i>			77.5	10.0-127	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

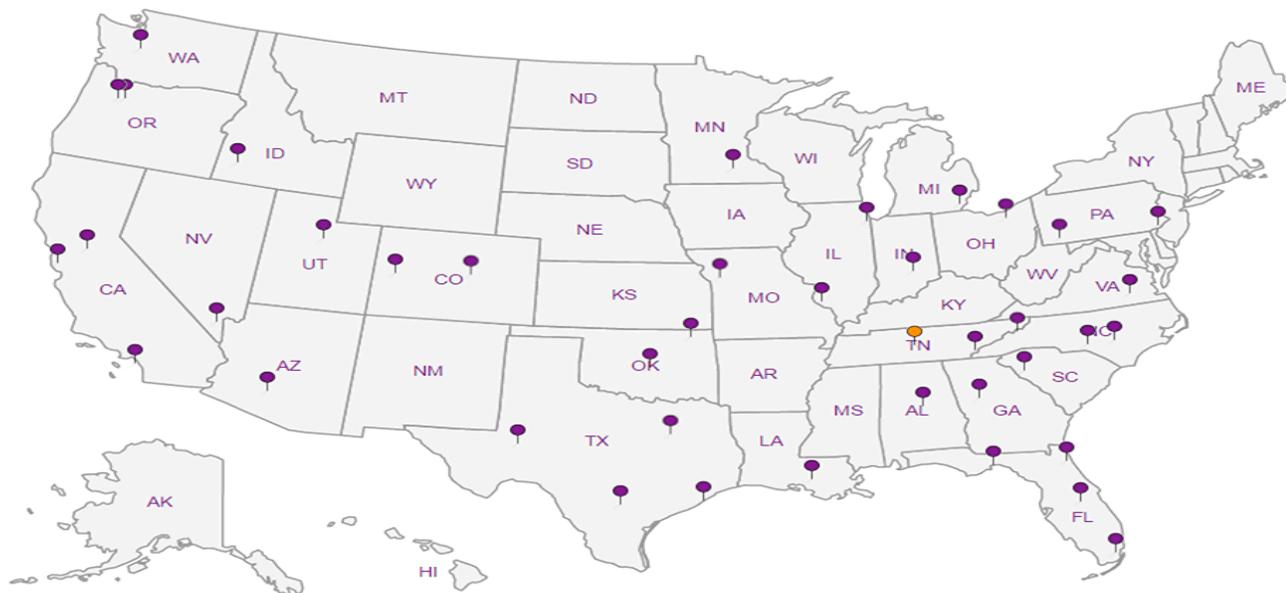
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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Andy Truong

Email To: **ATruong@nrcc.com**

Project Description:
Chromium Plating Facility
Hydro Extrusion **(AT)**

City/State Collected: **Portland/OR**

Please Circle:
PT MT CT ET

Phone: **503-283-1150**
971-291-8162 **(AT)**

Client Project #
10-20-03
#152036

Lab Project #
NRCENVPOR-CPF

Collected by (print):
Andy Truong

Site/Facility ID #

P.O. #
152306.57793

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day **X** 10 Day (Rad Only)
 ___ Three Day

Quote #
 Date Results Needed

Immediately Packed on Ice N ___ Y **X**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

Grattix Box #6		SS	6"	5/21/20	11:55	5
Grattix Box #9		SS	6"	11	12:15	5
		SS				5
		SS				5
		SS				5
		SS				5
		SS				5
		SS				5
		SS				5
		SS				5

Analysis / Container / Preservative				
CN Sulfide, TS 4ozClr-NoPres	Metals PP 2ozClr-NoPres	SULFUR-SUB 4ozClr-NoPres	SV8270D 4ozClr-NoPres	V8260C 40mlAmb/MeOH5ml/Syr

Chain of Custody Page ___ of ___



12065 Lebanon Rd
 Mount Juliet, TN 37122
 Phone: 615-758-5858
 Phone: 800-767-5859
 Fax: 615-758-5859



SDG # **1221382**

J182

Accnum: **NRCENVPOR**

Template: **T167969**

Prelogin: **P774091**

PM: **341 - John Hawkins**

PB: **5/15/20** *[Signature]*

Shipped Via: **FedEx 2nd Day**

Remarks Sample # (lab only)

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:

pH _____ Temp _____
 Flow _____ Other _____

Samples returned via:
 ___ UPS **X** FedEx ___ Courier _____

Tracking # **1790 3027 7234**

Sample Receipt Checklist

COC Seal Present/Intact: **NP** Y ___ N ___
 COC Signed/Accurate: **Y** ___ N ___
 Bottles arrive intact: **Y** ___ N ___
 Correct bottles used: **Y** ___ N ___
 Sufficient volume sent: **Y** ___ N ___
 If Applicable
 VOA Zero Headspace: **Y** ___ N ___
 Preservation Correct/Checked: **Y** ___ N ___
 RAD Screen <0.5 mR/hr: **Y** ___ N ___

Relinquished by: (Signature)
[Signature]

Date: **5/21/20**
 Time: **15:20**

Received by: (Signature)
 Trip Blank Received: Yes **(NO)**
 HCL / MeOH
 TBR

Relinquished by: (Signature)

Date: _____
 Time: _____

Received by: (Signature)

Temp: **14.4** °C
7±0.7 Bottles Received: **10**

Relinquished by: (Signature)

Date: _____
 Time: _____

Received for Lab by: (Signature)
M Pappas

Date: **5-22-20** Time: **9:00**

Hold: _____
 Condition: **NCF / OK**

June 01, 2020

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Gl

⁶ Al

⁷ Sc

NRC Environmental - Portland, OR

Sample Delivery Group: L1221384
Samples Received: 05/22/2020
Project Number: IO-20-03 #152036
Description: Hydro Extrusion

Report To: Andy Truong
6211 N Ensign St.
Portland, OR 97217

Entire Report Reviewed By:



John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	²Tc
Cn: Case Narrative	4	
Gl: Glossary of Terms	5	³Ss
Al: Accreditations & Locations	6	⁴Cn
Sc: Sample Chain of Custody	7	⁵Gl
		⁶Al
		⁷Sc

SAMPLE SUMMARY



GRATTIX BOX #6 L1221384-01 Solid

Collected by: Andy Truong
 Collected date/time: 05/21/20 11:55
 Received date/time: 05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1480959	1	06/01/20 00:00	06/01/20 00:00	-	Minneapolis, MN 55414

GRATTIX BOX #9 L1221384-02 Solid

Collected by: Andy Truong
 Collected date/time: 05/21/20 12:15
 Received date/time: 05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG1480959	1	06/01/20 00:00	06/01/20 00:00	-	Minneapolis, MN 55414

1 Cp

2 Tc

3 Ss

4 Cn

5 Gl

6 Al

7 Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Gl
- ⁶ Al
- ⁷ Sc

Project Narrative

L1221384 -01, -02 contains subout data that is included after the chain of custody.



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

SDG	Sample Delivery Group.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Gl
- 6 Al
- 7 Sc

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

1 Cp

2 Tc

3 Ss

4 Cn

5 Gl

6 Al

7 Sc

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

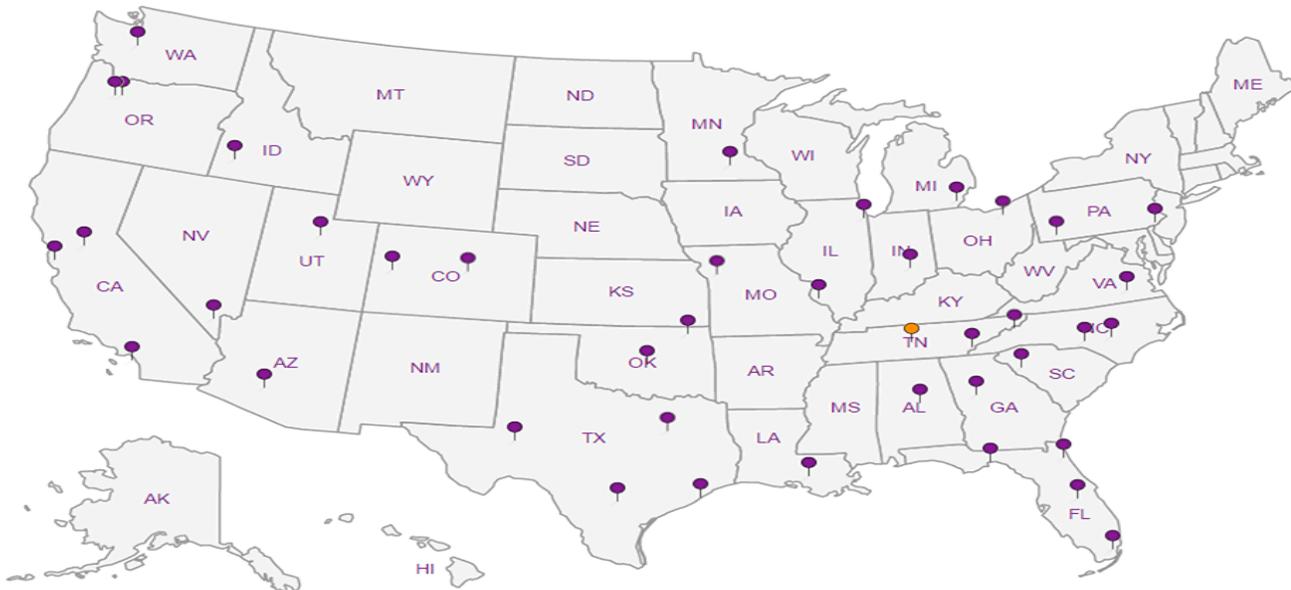
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



June 01, 2020

Client Services
Pace Analytical National
12065 Lebanon Road
Mount Juliet, TN 37122

RE: Project: IO-20-03 #152036 Hydro Ex
Pace Project No.: 10519435

Dear Client Services:

Enclosed are the analytical results for sample(s) received by the laboratory on May 27, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Sylvia Hunter
sylvia.hunter@pacelabs.com
1(612)607-1700
Project Manager

Enclosures

cc: Jimmy Huckaba, Pace Analytical National Center for
Testing & Innovation



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01	Minnesota Dept of Ag Certification #: via MN 027-053-137
Alabama Certification #: 40770	Minnesota Petrofund Certification #: 1240
Alaska Contaminated Sites Certification #: 17-009	Mississippi Certification #: MN00064
Alaska DW Certification #: MN00064	Missouri Certification #: 10100
Arizona Certification #: AZ0014	Montana Certification #: CERT0092
Arkansas DW Certification #: MN00064	Nebraska Certification #: NE-OS-18-06
Arkansas WW Certification #: 88-0680	Nevada Certification #: MN00064
California Certification #: 2929	New Hampshire Certification #: 2081
CNMI Saipan Certification #: MP0003	New Jersey Certification #: MN002
Colorado Certification #: MN00064	New York Certification #: 11647
Connecticut Certification #: PH-0256	North Carolina DW Certification #: 27700
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137	North Carolina WW Certification #: 530
Florida Certification #: E87605	North Dakota Certification #: R-036
Georgia Certification #: 959	Ohio DW Certification #: 41244
Guam EPA Certification #: MN00064	Ohio VAP Certification #: CL101
Hawaii Certification #: MN00064	Oklahoma Certification #: 9507
Idaho Certification #: MN00064	Oregon Primary Certification #: MN300001
Illinois Certification #: 200011	Oregon Secondary Certification #: MN200001
Indiana Certification #: C-MN-01	Pennsylvania Certification #: 68-00563
Iowa Certification #: 368	Puerto Rico Certification #: MN00064
Kansas Certification #: E-10167	South Carolina Certification #: 74003001
Kentucky DW Certification #: 90062	Tennessee Certification #: TN02818
Kentucky WW Certification #: 90062	Texas Certification #: T104704192
Louisiana DEQ Certification #: 03086	Utah Certification #: MN00064
Louisiana DW Certification #: MN00064	Vermont Certification #: VT-027053137
Maine Certification #: MN00064	Virginia Certification #: 460163
Maryland Certification #: 322	Washington Certification #: C486
Massachusetts Certification #: M-MN064	West Virginia DEP Certification #: 382
Massachusetts DWP Certification #: via MN 027-053-137	West Virginia DW Certification #: 9952 C
Michigan Certification #: 9909	Wisconsin Certification #: 999407970
Minnesota Certification #: 027-053-137	Wyoming UST Certification #: via A2LA 2926.01

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: IO-20-03 #152036 Hydro Ex
Pace Project No.: 10519435

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10519435001	Grattix Box #6	Solid	05/21/20 11:55	05/27/20 09:00
10519435002	Grattix Box #9	Solid	05/21/20 12:15	05/27/20 09:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10519435001	Grattix Box #6	EPA 6010D	IP	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
10519435002	Grattix Box #9	EPA 6010D	IP	1	PASI-M
		ASTM D2974	JDL	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

Sample: Grattix Box #6 **Lab ID: 10519435001** Collected: 05/21/20 11:55 Received: 05/27/20 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Sulfur	280	mg/kg	43.9	8.1	1	06/01/20 10:49	06/01/20 13:58		
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	43.1	%	0.10	0.10	1		05/29/20 16:27		N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

Sample: Grattix Box #9 **Lab ID: 10519435002** Collected: 05/21/20 12:15 Received: 05/27/20 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Minneapolis								
Sulfur	202	mg/kg	37.3	6.9	1	06/01/20 10:49	06/01/20 14:13		
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974 Pace Analytical Services - Minneapolis								
Percent Moisture	35.6	%	0.10	0.10	1		05/29/20 16:27		N2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

QC Batch: 678322

Analysis Method: EPA 6010D

QC Batch Method: EPA 3050B

Analysis Description: 6010D Solids

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10519435001, 10519435002

METHOD BLANK: 3630577

Matrix: Solid

Associated Lab Samples: 10519435001, 10519435002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfur	mg/kg	ND	24.3	4.5	06/01/20 13:50	

LABORATORY CONTROL SAMPLE: 3630578

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfur	mg/kg	971	902	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3630579 3630580

Parameter	Units	3630579		3630580		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Sulfur	mg/kg	280	1630	1650	1780	84	92	75-125	8	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

QC Batch: 678210

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight / %M by ASTM D2974

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10519435001, 10519435002

SAMPLE DUPLICATE: 3629844

Parameter	Units	10519435002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	35.6	38.5	8	30	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IO-20-03 #152036 Hydro Ex

Pace Project No.: 10519435

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10519435001	Grattix Box #6	EPA 3050B	678322	EPA 6010D	678435
10519435002	Grattix Box #9	EPA 3050B	678322	EPA 6010D	678435
10519435001	Grattix Box #6	ASTM D2974	678210		
10519435002	Grattix Box #9	ASTM D2974	678210		

REPORT OF LABORATORY ANALYSIS

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Document Name: Sample Condition Upon Receipt (SCUR) - MN

Document Revised: 27Mar2020

Page 1 of 1

Document No.: ENV-FRM-MIN4-0150 Rev.00

Pace Analytical Services - Minneapolis

Sample Condition Upon Receipt

Client Name: Pace National

Project #: WO#: 10519435
PM: SH1 Due Date: 06/03/20
CLIENT: ESC_TN

Courier: [X] Fed Ex [] UPS [] USPS [] Client [] Pace [] Speedee [] Commercial See Exceptions

Tracking Number: 1790 3030 7436

Custody Seal on Cooler/Box Present? [X] Yes [] No Seals Intact? [X] Yes [] No Biological Tissue Frozen? [] Yes [] No [X] N/A

Packing Material: [] Bubble Wrap [] Bubble Bags [] None [X] Other: pb Temp Blank? [X] Yes [] No

Thermometer: [X] T1(0461) [] T2(1336) [] T3(0459) [] T4(0254) [] T5(0489) Type of Ice: [X] Wet [] Blue [] None [] Dry [] Melted

Did Samples Originate in West Virginia? [] Yes [X] No Were All Container Temps Taken? [] Yes [] No [X] N/A
Cooler Temp Read w/temp blank: 1.4 °C Average Corrected Temp (no temp blank only): [] See Exceptions [] 1 Container
Correction Factor: 1.4 Cooler Temp Corrected w/temp blank: 1.4 °C

USDA Regulated Soil: ([] N/A, water sample/Other:) Date/Initials of Person Examining Contents: MK4 5/27/20
Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? [] Yes [] No
Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [] Yes [] No
If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Table with 2 columns: Question and COMMENTS. Contains 14 numbered rows regarding custody, analysis, and labeling.

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Date/Time: Field Data Required? [] Yes [] No

Comments/Resolution: Project Manager Review: Date: 5/28/20

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by:

NRC Environmental - Portland, OR

Sample Delivery Group: L1221385
Samples Received: 05/22/2020
Project Number:
Description: Hydro Extrusion

Report To: Andy Truong
6211 N Ensign St.
Portland, OR 97217

Entire Report Reviewed By:



John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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Gl: Glossary of Terms	7	
Al: Accreditations & Locations	8	
Sc: Sample Chain of Custody	9	

SAMPLE SUMMARY



CHROMIUM WIPE L1221385-01 WIPE

Collected by: Andy Troung
 Collected date/time: 05/21/20 12:30
 Received date/time: 05/22/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1483204	1	05/28/20 05:48	05/28/20 19:46	EL	Mt. Juliet, TN





All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc



Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chromium	0.0401		0.000500	1	05/28/2020 19:46	WG1483204

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

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⁹ Sc



Method Blank (MB)

(MB) R3532808-1 05/28/20 19:39

Analyte	MB Result mg/wipe	MB Qualifier	MB MDL mg/wipe	MB RDL mg/wipe
Chromium	U		0.000125	0.000500

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3532808-2 05/28/20 19:41 • (LCSD) R3532808-3 05/28/20 19:44

Analyte	Spike Amount mg/wipe	LCS Result mg/wipe	LCSD Result mg/wipe	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chromium	0.0500	0.0492	0.0486	98.4	97.2	80.0-120			1.20	20

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

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Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

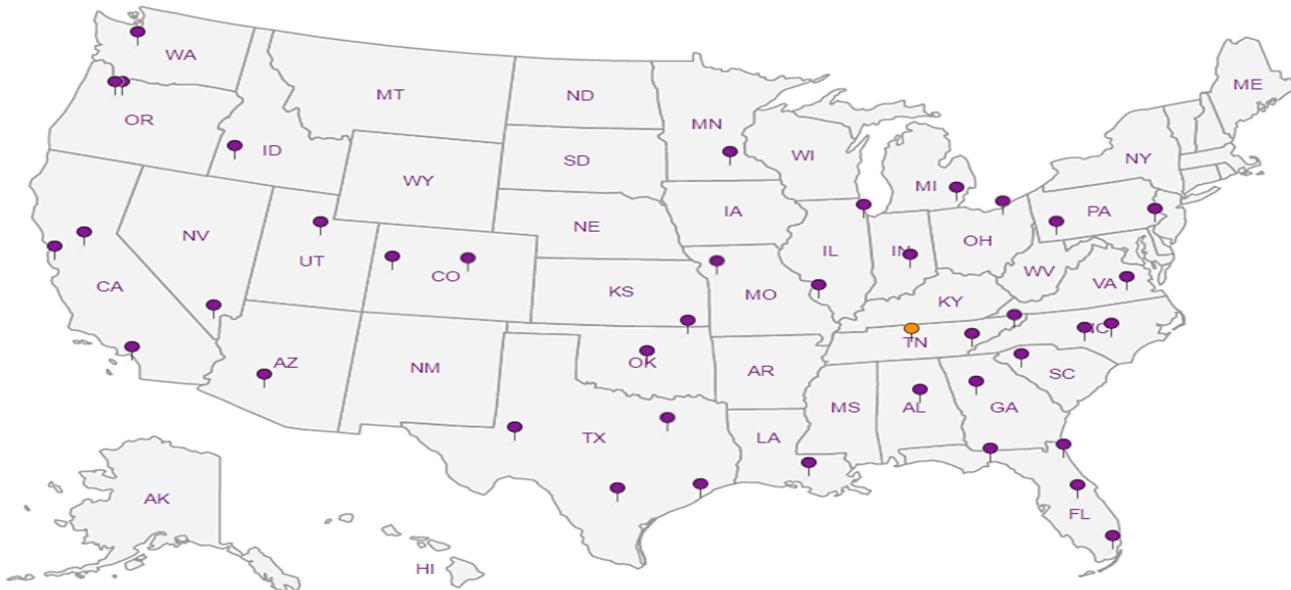
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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